

# The Canadian Medical Association Journal



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# The Canadian Medical Association Journal

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No. 5

## THE FINANCING OF PUBLIC HOSPITALS

M. T. MACEachern, M.D.

*General Superintendent, Vancouver General Hospital*

**B**OARDS of trustees and hospital administrators are to-day facing serious problems in connection with financing public hospitals. More money is required than formerly to meet current expenses. This is due to many reasons, but to two particularly. First, it is a well-known fact that expenses of all kinds have increased enormously far out of proportion to any increase in revenue that has been secured. This increase in expenses has taken place during the past few years, and although we are now on a falling market, little hope can be entertained of prices ever coming to a pre-war state; the cost of operating hospitals, therefore, will remain higher than in the pre-war years. The second reason, and possibly the more important, is the fact that our people are demanding an increased service from these institutions, and the expense of such a service is so great that the present consolidated revenue cannot meet it. This service is not unreasonable; it is only a minimum requirement, for we recognize to-day that hospitals must be efficient and do their part in assisting the doctor to get as good a result as possible.

Unless they are heavily endowed public hospitals secure their support mainly from four sources. These are: patients' fees, philanthropy, municipal assistance and provincial assistance. All are agreed that hospital charges or different services to the patient are now as high as they can be made without unduly burdening the patient. From this source very little further relief can be secured; indeed in many cases to-day the high prices make some of the essential services for diagnosis almost prohibitive. Philan-

thropy has been overworked during the war and since the declaration of peace the period of reconstruction has continued to make constant demands on it. It has been further burdened by heavy income taxes of a federal and provincial nature with the result that good old philanthropy, upon which many hospitals depended, has been forced to take a more retiring place in respect to its liberality. Municipal authorities tell us that their present consolidated revenue is exhausted and they cannot and will not give further assistance till a broadened scheme of taxation is brought in. They advise taking such matter up with the provincial government. The provincial government on being consulted present a similar answer and state that their consolidated revenue is now required in its entirety for the usual expenses of the administration of affairs in the province. What, then, about further assistance to our hospitals and health institutions? The only solution is that new revenue must be found which will provide immediate as well as permanent relief, and will put our institutions on a sound financial basis.

Granted that new revenue must be found the question arises: how is it to be obtained? I believe that people to-day are ready to accept a universal basis of taxation for hospital purposes; a tax the application of which would involve in an equitable way almost every resident in the province, thus conforming to a broadened taxation scheme in the truest sense of the word, and such a tax should be sufficient in amount to pay, either wholly or in part, the general ward service together with all that goes with it. This

general ward service, to everyone paying the tax, would include board nursing, accommodation, free use of all diagnostic facilities and all specialized treatment departments in connection with a well-regulated hospital. It might be desirable to establish a rate of \$1.00 per day for a public ward, but this is a matter of opinion. The per capita allowance for each patient through such a taxation would thus be sufficient to pay for all costs of the ward, giving the patient every possible facility that would be required for competent diagnosis and efficient treatment. If the patient was still obliged to pay \$1.00 per day this, augmented by the per capita secured from the general taxation scheme, would certainly be a very decided improvement on the present pernicious practice of charging the patient from \$2.50 to \$3.00 a day. This heavy charge makes it impossible for a great number to meet their obligations in any manner whatsoever, thus depriving our hospitals of sufficient revenue and our patients of necessary services which they cannot obtain on account of financial conditions. However, whether the general ward service with all that goes with it should be free or should be charged for at \$1.00 per day, is a matter of opinion; some might desire to pay some fee.

This scheme, as outlined, would in no way interfere with the right of patients to choose the doctor they would wish to attend them as well as to which hospital they would prefer to go. It has been estimated that in the Province of British Columbia that it will require a tax of about \$6.00 per person between the ages of eighteen and sixty-five, to sufficiently provide a per capita allowance of at least \$3.00 per patient per day. This would eliminate all uncollectable accounts and relieve the hospital of the unpleasant task now so troublesome, of collection of accounts. The great advantage, however, would be the fact that every man, woman and child, regardless of religion, colour, financial circumstances or otherwise, would have access to efficient hospital service when ill. The private ward patient would share in the advantage of such a scheme just as much as the public ward patient, for the former would have the per capita allowance credited on his private ward service, that is to say: if the per capita allowance was \$3.00 per day and the private room is costing him \$6.00 per day, he would have a credit coming to him of \$3.00 per day, owing to the fact that he has paid his hospital tax.

The collection of such a tax could be ac-

complished through the present governmental machinery without any additional cost. Several ways suggest themselves, and I will mention one or two of the more important.

*Firstly* For all those who are paying income tax or earning \$1500 or over, an additional amount could be added to their taxation roll for the specific amount indicated as 'hospital tax', just the same as we now see an additional amount for our automobile on the present income tax roll:

*Secondly.* All who are not included in this manner would pay through the poll tax machinery by an additional tax known as a "hospital tax"; indeed, in this connection it would be advisable to alter the term *poll tax* to *service tax*, and we believe it would be more popular. In addition, there is also the payroll and various other means which could be used without adding additional machinery and cost for the collection of this money.

In the Province of British Columbia a careful analysis of the public hospitals has been made in respect to their financial condition. The findings show clearly that these institutions are in a serious financial condition, nearly all having heavy deficits and those that have not, frankly admitting that they are only able to avoid a deficit at the sacrifice of their patients and staff, and could not honestly lay claim to having performed their obligations efficiently, owing to lack of money. Indeed, it has come to pass that many directors of these worthy institutions find their positions so intolerable, owing to financial conditions, that soon they will have to resign as boards and ask the Government or some other authority to take over the hospitals. This is a condition which is not desirable and the British Columbia Hospital Association has taken up the question seriously with a view to a solution which will be practical and permanent. The matter has also been before representative organizations such as the Association of the Boards of Trade of the Province, the Union of British Columbia Municipalities and others, all of whom have made strong representations to the Legislative authorities. In a summary report recently issued by the British Columbia Hospital Association the following three objectives were set forth to be taken up at once:

*Firstly:* That some action be taken immediately to pay all already accumulated deficits which are embarrassing hospitals so much at present.

*Secondly.* That something should be done to

prevent the accumulating of current deficits until a more permanent scheme of hospital financing be brought in.

*Thirdly.* That at the very shortest period of time a permanent, definite and efficient scheme of hospital financing should be established.

A recent memorial was presented to the Government of British Columbia by the British Columbia Hospital Association, which read as follows:

"Whereas the public hospitals of our Province have almost without exception come to the point where they are confronted with heavy deficits, or else are seriously handicapped in their work from lack of suitable buildings, equipment, or staff:

"And whereas this very grave condition has supervened in spite of every effort having been made to provide sufficient funds by all the usual methods:

"And whereas under these conditions it is obviously only a matter of a very short time before further credit will be refused the hospitals by banks and tradesmen:

"And whereas it is inconceivable that such a contingency should be permitted to occur:

"We, the British Columbia Hospital Association, respectfully turn to your Honourable Body with the following proposals as the only reasonable solution to our problems:

*Firstly.* That the Provincial Government be requested to disburse forthwith the deficits of the public hospitals of British Columbia until such time as a better and more permanent financial policy for financing said hospitals is adopted.

*Secondly.* That the present scale of per capita grants from the Provincial Government be doubled until such time as a measure is brought in providing for a more permanent and adequate system of financing hospitals.

*Thirdly.* That the Government be requested to bring in a measure at the earliest opportunity to provide by a universal basis of taxation for the adequate financing of all hospitals receiving aid under the "Hospital Act".

The substance of this memorial has been taken up by various organizations and efficient follow-up work has been accomplished. No definite announcement has been made as to what the future policy shall be. However, the scheme as outlined would undoubtedly meet the people's approval in every way and has the advantage of not disturbing present existing organization.

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**The Halifax Meeting.**—July 5th—8th, 1921. An important communication has been received from the Chairman of the Local Committee of the Halifax meeting with reference to hotel accommodation. He urgently requests that it be secured at the earliest possible moment, by writing to Dr. H. K. MacDonald, 133 Spring Garden Road,

Halifax. Applicants should specify choice of hotel and nature of room desired (see March number). They should also indicate as definitely as possible, time of arrival and extent of stay. Provided applications are made in time, the Committee promises to find room for all visitors.

## PROGNOSIS OF PULMONARY TUBERCULOSIS

FRED H. HEISE, M.D.

*Trudeau, N.Y.*

IN pulmonary tuberculosis the prognosis is, to say the least, uncertain. So many factors which may or may not be under our control directly or indirectly influence the disease that in any given case the course, duration or outcome must remain largely an uncertainty. As a rule it is most unwise to give a definite prognosis unless based upon at least one month's accurate observation of the clinical progress of the disease. And as quite a few of our deductions will later be shown to be erroneous, dogmatism in prognosis should not be practiced. Nevertheless, there are conditions and circumstances which in a general way influence the prognosis of pulmonary tuberculosis favorably or unfavorably and a few of these will be briefly discussed.

It is quite generally accepted that an implantation of tubercle bacilli upon virgin soil will produce an acute tuberculosis, if any at all. For this reason clinical tuberculosis in the very young—under two years of age—is very largely fatal. The tendency toward acuteness of the disease may be said to diminish as age advances until at or about the time of puberty at which time renewed activity of the disease may manifest itself in those previously affected or clinical disease may develop in those previously infected. After the age of puberty there is rather a great tendency for the disease to be of the chronic type and acute, widely disseminated, or miliary tuberculosis becomes less common. The prognosis then becomes more or less that of adult pulmonary tuberculosis. From the twentieth to the fortieth year as far as age itself is concerned the prognosis may be regarded as favorable. After the fortieth year recovery from the disease is not so likely to happen. However, the progress is more apt to be slow so that from the standpoint of duration the prognosis is more favourable than in earlier years.

Until about the time of puberty mortality from tuberculosis is about equally distributed among males and females. During the age period ten to fifteen years the mortality among females is almost double that of males. Mortality

among females remains in excess of that among males until about the twenty fifth year of age. After this period the males have a greater mortality than females until at least the fortieth year (U. S. Census 1914-1918, Hugh Wiley). Inasmuch as after the tenth year of life pulmonary tuberculosis becomes more frequent and meningitis less frequent it can be said that sex is of importance in prognosis particularly at certain age periods.

Pregnancy should be looked upon more or less as a complication and in the presence of active disease must be regarded as very unfavourable. The male generally the provider of home and comforts, must or will often continue in his work, unable to take proper treatment for financial reasons and of course, when this is so, the prognosis becomes unfavourable. The habits of life in the male also influence the prognosis unfavorably in many instances.

Outdoor workers becoming ill with pulmonary tuberculosis perhaps have a less favourable prognosis than indoor workers. Those leading an inactive mental or physical life and those accustomed to all the comforts and luxuries of life, when other things are equal usually have a less favourable prognosis than those physically or mentally active previous to the onset of the disease, or those to whose life the rest and comfort of proper treatment prove quite a change. And it is probably the stimulus of mental change as well as the rest from physical or mental exertion which favourably influences the prognosis.

Environment unquestionably influences the course of the disease. Yet it is most wonderful under what unhygienic mental and physical environment a patient may symptomatically recover from the disease.

The mind plays an important rôle in recovery from pulmonary tuberculosis. Proper treatment requires a willingness to co-operate—a willingness to do what, to the patient, often seems needless and contrary to common logic or sense. Why should he, feeling so well, remain in bed, an invalid? Not only willingness but determination

and perseverance are necessary. For this reason a proper knowledge of the disease is a necessity for the patient. Needless to say cheerfulness adds to the chances of recovery. Those who react strongly to the small worries and disappointments of life necessarily have a less favourable prognosis than those who react normally to these stimuli. A lack of proper regard for the seriousness of the disease and recklessness in heeding advice in treatment mean an unfavourable prognosis.

When the onset of the disease is sudden, the patient perhaps seeks medical advice earlier and discovery of the cause of illness may be earlier ascertained than when the onset is slow and indefinite. Large losses of weight are unfavourable. A loss of one-fourth the usual weight should be regarded as very unfavourable and a loss of one-third the usual weight is usually accompanied by fatal disease. If, under ordinary feeding, the patient gains weight especially when steady gains are made, the prognosis is good from this standpoint. When forced feeding is necessary to regain lost weight the prognosis is less favourable. Failing digestion is, of course, unfavourable. However, lack of appetite, strange to say, is fairly often accompanied by good assimilation.

The presence of fever or rapid pulse, not due to other causes, is of unfavourable significance. Activity of the disease is present and the prognosis must be accordingly made. Persistent elevation of temperature is less favourable than when recurrent although both are unfavourable. Inverse temperature elevations are of especially bad insignificance.

Absence of fever, it must be remembered, at times may mean lack of resistance as shown by other symptoms. Continued rapidity of pulse, not due to other causes, is of unfavourable significance. Cyanosis when acute and accompanied by dyspnoea, or following upon hæmoptysis, is unfavourable as an acute extension of the disease or the onset of miliary tuberculosis is most likely. Hæmoptysis may be either accidental and of little import or it may be a symptom of progressing disease. When not accompanied by fever, dyspnoea, cyanosis, or tachycardia, providing the loss of blood is not severe, prognosis may be but slightly altered.

Symptoms, as a rule, afford an index of the activity of the lesion while physical signs and the x-ray show the location, extent, intensity and character. Usually the apical lesion is more favourable than one situated in the centre

or at the base. An extensive lesion is less favourable than one of small area and the greater the intensity (infiltration, consolidation, etc.) usually the less favourable the prognosis. At times the x-ray gives an idea of the activity of the lesion when physical signs do not, and of course the prognosis should vary with progression or retrogression of the lesion. When x-rays taken at intervals of three months show no change the prognosis should be favourably influenced, since apparently the disease is at least not progressing, but on the other hand may be quiescent or possibly "healed".

A gradual lessening in amount and a change from purulent to mucoid sputum is of favourable significance. At times the amount may be increased and the character change from purulent to mucoid just preceding a lessening or cessation of sputum. Sudden diminution in the amount may be due to localized congestion within the lung, pneumonic or miliary processes, and when accompanied by unfavourable symptoms should make the prognosis unfavorable. So, too, a growing increase in quantity and a change from mucoid to purulent is of unfavourable significance. The presence of tubercle bacilli in the sputum makes the prognosis less favourable than when absent. Their periodic or permanent disappearance allows a more favourable prognosis. Tuberculous complications, of course, make the prognosis less favourable and in proportion to the severity and location of the complication. Early laryngitis, when properly treated, responds readily to treatment. Pleurisy with effusion at times is of favourable significance, especially in limited disease. In early cases pneumothorax may occur without symptoms or damage. But in advanced cases pneumothorax is a very serious complication. Enteritis, it is now believed, may be recovered from temporarily if not permanently. However, when occurring in advanced cases and when the symptoms are marked, the prognosis should be very guarded. Tuberculous empyema is a serious complication. Tuberculous meningitis, while nearly always fatal, has at times been recovered from, so, too, has Addison's disease.

To arrive at a satisfactory prognosis then we must consider the numerous factors which favourably or unfavourably influence the disease in each individual case. In part (not, however, in the order of their importance) these may be said to consist of the following: age, sex, environment, personality, onset, loss and gain

in weight, digestion and assimilation, elevation of temperature, fast pulse, cyanosis and dyspnoea, hæmoptysis, extent, intensity and location of the lesion, tubercle bacilli, complications, ability to receive and accessibility of proper treatment.

An idea of what may be expected in a general way in patients receiving education and treatment may be gotten from the accompanying tables formulated from the records of the Trudeau Sanatorium. Tables 1, 2, 3 are from an analysis of three hundred cases all of which had x-ray evidence of parenchymatous disease.

TABLE No. 1

CHANGE OF RÂLES ADMISSION AND DISCHARGE IN 300 PARENCHYMATOUS CASES

RALES	DEVELOPED	3%
"	DISAPPEARED	11%
"	NONE	14%
"	STATIONARY	18%
"	INCREASED	27%
"	DECREASED	27%

Table 1 shows the frequency with which râles were present or absent, developed or disappeared, increased or diminished in area during residence at the Sanatorium which receives almost exclusively only minimal or incipient and moderately advanced cases for periods of from three to six months. From the table it may be seen that when râles are present upon entrance the most frequent occurrence is their increase or diminution. The next likely occurrence is that they will neither increase nor diminish. In only a relatively small percentage did râles occur when not previously present or disappear when found upon admission.

TABLE No. 2

CHANGE IN X-RAY—ADMISSION AND DISCHARGE IN 300 PARENCHYMATOUS X-RAY CASES

X-RAY	INCREASED	14%
"	STATIONARY	17%
"	DIMINISHED	69%

Table 2 shows the changes during treatment as seen in the x-ray plates. Here over two-thirds of the cases are seen to have improved. Those cases in which the x-ray showed no change were probably quiescent or arrested cases upon entrance.

Table No. 3 shows the discharge condition of these 300 cases. Nearly three-fourths have shown definite improvement and freedom from symptoms of activity.

TABLE No. 3

DISCHARGE CONDITION OF 300 X-RAY PARENCHYMATOUS CASES

UNIMPROVED	11%
IMPROVED	14%
APP. ARRESTED	74%
QUIESCENT	

During treatment of three to six months' duration of this class of cases it may be said, as a general rule, that only a small percentage of cases will lose their râles and approximately one-half will show an increase or diminution of their extent. The x-ray will show an extension of the lesion in about one-seventh of the cases while at discharge nearly three-quarters will be free from symptoms of activity for at least the two previous months.

TABLE No. 4

RÂLES—ADMISSION AND DISCHARGE CHANGE—ALIVE 5-11 YEARS—POST DISCHARGE 979 CASES (Dr. F. B. Trudeau).

INCREASED	68%
DECREASED	83%
STATIONARY	89%

Table No. 4 has been arranged from the figures of F. B. Trudeau (*Amer. Rev. Tuberc.* Sept., 1920, iv. 7). This table shows the percentages of those living from five to eleven years after discharge in nine hundred and seventy-nine cases whose râles during treatment remained stationary, increased or decreased in area. It will be seen that the greatest number of deaths occurred in the "râles increased" group and that, if anything, the "râles stationary" group has a prognosis equal to, or perhaps better than, the "râles diminished" group.

TABLE No. 5

APPROXIMATE PER CENT. DEAD 10 YEARS AFTER DISCHARGE

INCIPIENT	21%
MODERATELY ADVANCED	54%
ALL CASES	33 to 45%
APP. ARRESTED	28%
QUIESCENT	52%
UNIMPROVED	

Proportion :- Incip. 1 Mod. Adv. 2 or 3.  
App. Ar. 1 Quiesc. 1 Unimp. 1 1/2 or 2.

Table No. 5 shows the approximate mortality ten years after discharge among incipient and moderately advanced cases and those having been discharged as "active" (improved-unimproved) and "inactive" (apparently arrested and quiescent). The moderately advanced case,

after ten years has from two to three times the mortality of the incipient and, the "active" case one and one half to two and one-half times the mortality of the "inactive" case.

TABLE NO. 6.

Approx. Ages. DEAD 20 YEARS AFTER DISCHARGE - 816 CASES.  
11-19 = 11%; 20-29 = 24%;  
30-39 = 61%; 40-49 = 6%.

INCIPIENT	58%
MODERATELY ADVANCED	85%
ALL CASES	82-85%
TYPE ARRESTED	59%
QUIESCENT	
IMPROVED	83%
UNIMPROVED	

Table No. 6 shows the mortality as in Table No. 5, after twenty years. Here it is also seen that the incipient and inactive cases have a better prognosis than the moderately advanced and active cases. And as in Table No. 5 the incipient cases and the "inactive" cases behave similarly, so, also the moderately advanced and "active" cases.

TABLE NO. 7

CAUSE OF DEATH, TUBERCULOSIS IN 174 CASES 20 YEARS AFTER DISCHARGE

INACTIVE	82%
ALL CASES	90%
ACTIVE	97%

Table No. 7 gives the percentages of deaths (in those discharged twenty years) from tuberculosis in one hundred and seventy-four instances in which these facts were known. From this table it is seen that while the prognosis as to death from tuberculosis is still in favour of the "inactive" cases the difference is relatively small (15 per cent.) and that the majority of the one hundred and seventy-four cases (90 per cent) have died of pulmonary tuberculosis. The small number dealt with here is, of course, unfortunate. Of eight hundred and sixteen cases whose status twenty years after discharge was known, six hundred and sixty-three were dead and of these the cause of death was known in only one hundred and seventy-four. In 1400 more recent cases discharged ten to nineteen years, the cause of death was known in 93 per cent. Tuberculosis was the cause in 89 per cent.

Table No. 8 shows the general mortality and mortality from tuberculosis in the incipient, moderately advanced and far advanced cases sixteen to nineteen years after discharge from the Sanatorium. The cases are subdivided into four groups according to the presence or absence of tubercle bacilli or a history of hæmoptysis of a

teaspoonful or more. From the table it is seen that those cases in which tubercle bacilli were not found and in which no hæmoptysis occurred (Group 1) and those in which hæmoptysis occurred but in which tubercle bacilli were not found (Group II.) behaved similarly. And those cases in which tubercle bacilli were found whether hæmoptysis occurred or not behaved similarly

TABLE NO. 8

DEATHS FROM ALL CAUSES AND FROM TUBERCULOSIS IN 1,000 CASES 16 TO 19 YEARS AFTER DISCHARGE HEMOPTYSIS, NEG., BACILLI, NEG., GROUP I.

ALL CAUSES	INCIPIENT	15%
	MODERATELY ADVANCED	30%
TUBERCULOSIS	INCIPIENT	9%
	MODERATELY ADVANCED	25%

HEMPTYSIS POS. } GROUP II  
BACILLI NEG.

ALL CAUSES	INCIPIENT	18%
	MODERATELY ADVANCED	26%
TUBERCULOSIS	INCIPIENT	11%
	MODERATELY ADVANCED	13%

HEMPTYSIS NEG. } GROUP III  
BACILLI POS.

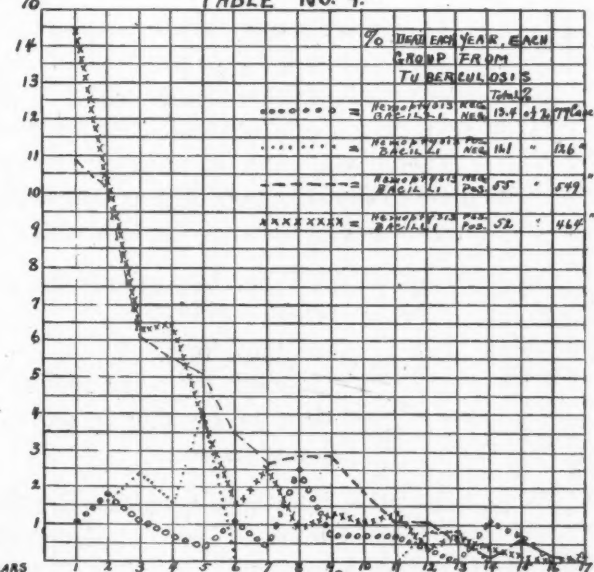
ALL CAUSES	INCIPIENT	35%
	MODERATELY ADVANCED	64%
	FAR ADVANCED	89%
TUBERCULOSIS	INCIPIENT	28%
	MODERATELY ADVANCED	60%
	FAR ADVANCED	87%

HEMPTYSIS POS. } GROUP IV  
BACILLI POS.

ALL CAUSES	INCIPIENT	33%
	MODERATELY ADVANCED	60%
	FAR ADVANCED	92%
TUBERCULOSIS	INCIPIENT	28%
	MODERATELY ADVANCED	56%
	FAR ADVANCED	88%

(Groups III. and IV.). Groups III. and IV. show a decidedly unfavourable prognosis compared to Groups I. and II. So the occurrence of tubercle bacilli in the sputum must be looked

TABLE NO. 9.



upon as of unfavourable significance. It must not be inferred from this, however, that the occurrence of tubercle bacilli means an active lesion. It does mean, however that an "open" lesion is more dangerous than a closed one. Again the advantage of the incipient over the moderately advanced and of the moderately advanced over the far advanced case is readily seen.

Table No. 9 shows the percentages in each of the groups of Table 8 dying from tuberculosis in each year after discharge. The greater numbers of such deaths and their early occurrence is readily seen in the bacilli positive groups. Not only is the ultimate prognosis less favourable in the bacilli positive groups but prognosis as to duration of life is much less favourable than in the bacilli negative groups.

From all of the tables, which deal almost entirely with incipient and moderately advanced cases after three to six months' treatment, may be summarized the following:

1. Râles when present at the onset of treatment will, after three to six months' treatment, tend to either increase or diminish in over half of the cases. Only comparatively infrequently do they disappear or appear when previously absent. A fair number (about one in five or six) show no change in the area of râles heard.

2. The x-ray will show no improvement in about one of seven cases and approximately two-thirds will show definite improvement.

3. Nearly three-quarters of the cases will show freedom of symptoms of activity.

4. After five to eleven years those in whom the râles increased in area while under treatment showed the highest mortality. When râles remained stationary during treatment prognosis was not unfavourably influenced.

5. Incipient or minimal cases have a better immediate and ultimate prognosis than the moderately advanced; moderately advanced a better prognosis than far advanced cases.

6. Regardless of extent of lesion the cases becoming inactive under treatment have a much better prognosis than those which retain symptoms of activity.

7. After the lapse of twenty years the cause of death was pulmonary tuberculosis in most of the traced cases. Those cases, which were inactive after treatment have a better prognosis than those having symptoms of activity.

8. Tubercle bacilli when present in the sputum make the prognosis much less favorable than when absent. This refers to longevity, general mortality and mortality from tuberculosis, and holds true for the incipient and moderately advanced cases.

### TO THE MEDICAL PROFESSION OF CANADA:

If you are requiring an assistant or planning a holiday this summer, or a few weeks off to brush up, or possibly a honeymoon, the services of a recent graduate, or a senior student in medicine, might be desired. The student body of the province of Ontario is being canvassed with reference to summer work.

Should you consider utilizing one of the men available, please forward full particulars to the Secretary of the Ontario Medical Association, at 127 Oakwood Avenue, Toronto, making note of the following:

- This year's graduate, or senior student;
- When required;
- For how long;
- Assistant or *locum tenens*;
- Must he be able to drive car;
- Remuneration;

and any other information which will facilitate the confluence of supply and demand.

A large number of senior students will be available on June 1st.

## REPORT ON THE SCHICK TEST AND TOXIN-ANTITOXIN IMMUNIZATION AT THE CHILDREN'S HOME, WINNIPEG

GORDON CHOWN, B.A., M.D.

*Winnipeg*

**A**S little work has been done in Winnipeg with regard to toxin-antitoxin immunization owing to the fear of the reaction that might follow, this report is presented to stimulate a more general interest in the subject with the hope that all children in the various public institutions may receive the benefit of the immunity against diphtheria as afforded by toxin-antitoxin injections.

Through the interest of Dr. Gordon Bell a supply of Schick test and toxin-antitoxin was obtained from the Connaught Laboratories, Toronto.

The technique followed for the Schick test was that outlined in the pamphlet published by the Department of Health, City of New York, 1918.

Full instructions accompany each Schick outfit and little practice is required in order to become proficient in the method of administration. The test is read at the end of twenty-four, forty-eight, seventy-two, ninety-six hours. Some slight difficulty may be experienced in the interpretation of results owing to an occasional pseudo-reaction which occurs. The false reaction is seen in relatively few of the older children but in a much larger number of adults, in whom it is of importance to recognize and control both by the injection of heated toxin and by observing the clinical course of the reaction. In table No 1 is given the result of the Schick test for the various ages. The column headed "Diphtheria" indicated that these children gave a previous history of having had diphtheria. It will be noted eleven of this number gave a negative Schick reaction while seven gave a positive reaction indicating that an attack of diphtheria does not protect absolutely against another attack. In table

No. 2 is given a summary by age groups of the positive and negative cases.

TABLE NO. 1  
Number Tested 156

Age	No.	Neg.	Diphtheria	Positive	Diphtheria
15....	1	1	..	..	..
14....	3	1	..	2	..
13....	4	2	..	2	..
12....	8	5	..	3	..
11....	4	4	1	..	..
10....	18	7	3	11	5
9....	14	8	1	6	..
8....	22	8	1	14	1
7....	11	8	3	3	..
6....	16	4	..	12	1
5....	15	4	1	11	..
4....	10	4	..	6	..
3½....	5	2	..	3	..
3....	4	1	..	3	..
2½....	4	..	..	4	..
2....	7	1	1	6	..
1½....	1	..	..	1	..
1....	4	1	..	3	..
10 mos.	4	2	..	2	..
2½....	1	1	..	..	..
	156	64	11	92	7

TABLE NO. 2  
Summary of Schick Test by Age Groups

Age	No.	Negative	Positive	Diphtheria Per cent. positive
0-1 yr...	9	4	5	55.5%
1-5 yrs..	46	12	34	73.9%
5-10 yrs.	81	35	46	56.7%
10-15 yrs.	20	13	7	35%
	156	64	92	

Read before the "Group" Meeting, Winnipeg General Hospital, February, 1921.

The positive cases in this series greatly exceed those of Zingher's<sup>1</sup>, which may be accounted for by the fact that reactions which showed a trace of redness at the end of ninety-six hours were called positive. It was thought wiser to err on this side in order to make sure of obtaining an absolute protection for the institution. One cubic centimetre of toxin-antitoxin at weekly intervals for three doses has been administered to all positive cases, and in no instance has the administration been followed by a severe reaction. Owing to a slight local reaction three of the older children

were allowed to remain home from school for one day.

Some difficulty has been experienced in obtaining a satisfactory syringe that will stand the back pressure of intracutaneous injection without leaking.

The work of Park and Zingher of the New York City Laboratories has clearly shown the efficacy of active immunization against diphtheria and it is felt that steps should be taken to urge its more general adoption, not only in institutions, but in the schools.

1. ZINGHER.—*Am. J. Dis. Chil.*, Aug., 1918, Vol. 16, p. 83.

## THE PROGNOSTIC VALUE OF THE STUDY OF THE BLOOD CREATININE IN NEPHRITIS

BASED UPON THE STUDY OF FOURTEEN CASES WITH COMPLETE POST-MORTEM EXAMINATION

I. M. RABINOWITCH, M.D.

**L**ITTLE information of practical value, concerning the creatinine content of the blood, was available until Folin and Denis<sup>1</sup>, Myers and Fine<sup>2</sup>, first reported their observations. These authors showed that a marked increase of the blood creatinine occurs in advanced cases of chronic nephritis. Since then the prognostic value of the study of the creatinine of the blood has been repeatedly demonstrated<sup>3, 4, 5</sup>. Among the conclusions drawn in these communications were: That in nephritis "the blood creatinine furnishes a more reliable prognosis than any other test we possess,"<sup>5</sup> and that "creatinine values from 2.5 to 3.0 mgm. per 100 c.c. may be viewed with suspicion; figures from 3 to 5 mgm. may be regarded as decidedly unfavourable, while over 5 mgm. probably indicates an early termination."<sup>3</sup> The comparatively large series of cases reported certainly justifies the conclusions drawn, and the cases reported here, as observed in the Montreal General Hospital, are reported merely as additional data.

From the Department of Metabolism of the Montreal General Hospital.

It will be seen from the chart that a high urea nitrogen and low dye excretion were also found in those cases where it was possible to determine these. That a high urea nitrogen content of the blood and a low dye excretion are also valuable signs of impairment of kidney function are well-established facts, but these findings do not invariably occur, even in advanced cases of nephritis. The blood urea is greatly influenced by food intake, and it may be found that even in those advanced cases, where the present illness has been in existence for any length of time, and has been associated with a loss of appetite, the diminished food intake would account for the finding of a low blood urea nitrogen on the day of admission to the hospital, whereas the creatinine being endogenous in origin, chiefly, is little influenced by food intake. The amount of dye excretion can only be accepted as index of kidney function at the time the dye is injected. It represents elimination only, and has not the same significance as nitrogen retention—the difference between production and elimination. At times in the presence of a high blood urea the dye excretion may

be normal or nearly so, and therefore no true indication of the degree of impairment of function. A retention of creatinine is, however, indicative of a marked degree of impairment of function, since it is the nitrogenous product most easily eliminated.

To judge the prognosis, however, by the creatinine, it becomes essential to correlate the clinical picture, and differentiate between (generally speaking) two types of retention, (a) one in which there is a gradual increase in the various non-protein nitrogenous elements of the blood; that is, an increase, first of uric acid, then of urea, and lastly of creatinine, as is seen in gradual degenerative changes in the kidney, such as occurs in chronic nephritis, and (b) a sudden complete retention of all products as may occur in an acute toxic nephritis, *e.g.*, bichloride poisoning, or in cases in which there is a mechanical obstruction to the urinary outflow, as may occur in urethral stricture, prostatic obstruction, ureteral stone, etc. In the latter type a high creatinine may be encountered, but with the relief of the obstruction by urethrotomy, catheterization, etc., the creatinine content diminishes. It is not due to a permanent organic lesion of the kidney, and consequently the prognosis is more favourable. In the latter type the fall in the creatinine concentration of the blood may be rapid or gradual, depending on the rate of functional recovery of the kidneys, which rate will depend upon the degree, extent and stage of the obstruction, as has been demonstrated experimentally.<sup>6</sup>

The two following cases will illustrate the influence of mechanical obstruction upon creatinine retention and the effect of the relief of the obstruction.

Hospital No. 5535-20. Male, age sixty-two, admitted to the Urological Service of the Montreal General Hospital with a history of anuria. Clinical diagnosis, prostatic enlargement, acute urinary retention:

Admitted	Blood urea N. mgm. per 100 c.c.	Creatinine	Phthalein. % in 2 hours
Dec. 11, 1920.....	98	3.7	..
" 13, 1920.....	89	2.7	0
" 15, 1920.....	76	2.6	..
" 17, 1920.....	60	..	..
" 31, 1920.....	42	..	..
Jan. 6, 1921.....	30	..	29
" 15, 1921.....	26	..	..
" 25, 1921.....	..	..	32
Feb. 9, 1921.....	33	2.1	..

In this case by relief of the obstruction (cathe-

terization) the mechanical cause of the increased nitrogenous products was removed and therefore the creatinine content diminished, gradually (sixty days). The patient recovered.

Hospital No. 609. Male, age sixty-four, admitted to the Urological Service of the Montreal General Hospital February 10th, 1921, with a recent history of prostatic enlargement and retention of urine:

Date	Blood urea. Nitrogen mgm. per 100 c.c. blood	Creatinine
Feb. 11, 1921.....	62	3.6
" 14, 1921.....	23	1.6

Here it will be noted that (after repeated catheterization) the fall in the concentration of the urea and creatinine was sudden (four days).

The above two types of cases differ strikingly from the following case, a chronic nephritis, with progressive degenerative changes in the kidney.

Hospital No. 4277. Male, age fifty, admitted to the Medical Wards of the Montreal General Hospital, with an old history of chronic nephritis. The following were the findings:

Date	Urea N. mgm.	Creatinine per 100 c.c.	Phthalein. % in 2 hours
Sept. 20, 1920.....	68	5.0	6
" 24, 1920.....	66	5.0	..
Oct. 2, 1920.....	70	5.0	2
" 9, 1920.....	90	5.0	..
Nov. 1, 1920.....	80	5.0	0
Dec. 17, 1920.....	176	6.1	..
" 18, 1920.....	216	7.3	..
" 19, 1920.....	224	8.1	..
" 21, 1920.....	268	10.1	..
Died.			

It will be noted that although the creatinine figures were high on admission, they remained constant for two months, during which period there was a gradual increase in the urea nitrogen in spite of the restricted diet on which the patient was placed.

The following is the list of fourteen cases upon which this report is based (admitted to the Montreal General Hospital). Each of these cases showed the clinical signs, and symptoms of chronic nephritis, and the diagnosis was corroborated in each case by the post-mortem examinations.

The method employed is that of Folin and Wu<sup>7</sup>, with the preliminary purification of the picric acid.<sup>8</sup> The normal figures are regarded as 1.0 to 1.5 mgm. per 100 c.c. of blood.

No.	Hosp. No.	Age.	Days ill from first day, observed, to day of death	Creatinine mgm. per 100 c.c.	Urea N.	Phenol-sulpho-nephthalein % in 2 hours
1. . .	McC*	26	9	12.0	137	.6
2. . .	1320	61	4	10.4	30	2.5
3. . .	21.02	42	5	8.3	162	..
4. . .	2616	45	5	8.2	200	.4
5. . .	4010	47	120	7.1	105	..
6. . .	883	60	22	6.3	126	..
7. . .	1332	?	2	6.2	112	..
8. . .	1760	69	1	6.2	96	..
9. . .	1378	77	32	6.0	96	..
10. . .	1376	39	13	5.6	52	2.5
11. . .	1069	64	27	5.4	55	.7
12. . .	4049	58	13	5.1	119	.6
13. . .	4277	50	102	5.0	68	..
14. . .	258-21	52	22	5.0	100	.0

\* Bichloride poisoning.

It will be noted that although the cases are arranged according to their degree of concentration of creatinine from highest to lowest, there is not the same relation of the days of duration of disease. The striking thing is, however, that they all had an early fatal termination.

Case No. 1 of this series is a case of bichloride poisoning and should really be regarded as belonging to the "sudden retention" type. It is included in this series, however, for the reason that it was one of three cases of bichloride poisoning which were admitted to the Montreal General

Hospital, and an opportunity was afforded for the study of their kidney function.

All three cases showed clinical evidence of a marked toxic effect of the drug. Two cases, in spite of the clinical picture (hæmaturia, etc.), showed only a slight impairment of kidney function and recovered. This case recorded, with the figures quoted, died.

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We understand that the *American Journal of Surgery* contemplates bringing out in their May number a series of articles on "Fractures" by recognized authorities. The following is a list of the papers promised for that number: "Fractures of Tibia-end-results and Ambulant Treatment", Dr. John J. Moorhead, New York City; "Treatment of Fractures of the Humerus", Dr. Joseph Blake, New York; "Treatment of Fractures at and about the Ankle", Dr. Frederic J. Cotton, Boston, Mass.; "The Cerebral Symptoms and Operative Indications in Skull Fractures", Dr. William Sharpe, New York City; "Latent Symptoms from Unrecognized Fractures

of the Vertebrae", Dr. Norman Sharpe, New York City; "Fractures of Fingers and Toes", Dr. Harry E. Mock, Chicago, Ill.; "Early and Complete Immobilization as a Factor in the Preservation of Joint Function in the Treatment of Fractures", Dr. H. Winnett Orr, Lincoln, Nebr.; "Intertrochanteric Fractures of the Femur", Dr. Kellogg Speed, Chicago, Ill.; "Bedside Radiography in Fractures", Dr. I. Seth Hirsch, New York; "Fractures at the Head of the Radius", Dr. James Morley Hitzrot, New York; "Traction—Suspension—Apparatus", Dr. Henry H. M. Lyle, New York; "Pott's Fracture of the Leg", Dr. W. L. Estes, So. Bethlehem, Pa.

SOME UNFORTUNATE SEQUELÆ OF SUPRAPUBIC  
PROSTATECTOMY

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Vancouver

THE sequelæ in question are the result of continued obstruction to urination and manifest themselves as dysuria with or without concurrent lithiasis and the more remote consequences of back pressure, chronic uræmia and chronic septic absorption.

Obstruction of some degree persists after most prostatectomies although usually overlooked by patient and surgeon alike—by the former because he is an old man, whose ambition for perfection is of the past and who is grateful for improvement in a life of misery; by the latter because he has been too easily satisfied with his patient's assurances and consequently has given the matter less thought than it deserves.

The degree of obstruction and the character of a local concurrent infection determines the severity of symptoms. Should obstruction be of slight degree and infection of a comparatively non-irritant nature such as is produced by colon bacillus there is no marked inconvenience complained of. The same amount of obstruction associated with infection by staphylococcus albus or proteus bacillus subjects the patient to ammoniacal phosphaturia and secondary lithiasis. Phosphatic stone may form in a residual urine pouch back of the obstruction. So little exacting are old people that the surgeon is often not called to see them till stone has formed; although a period of marked dysuria must have preceded. Finally, obstruction may be so marked that urination is a dribble or no urine at all may evacuate itself through the urethra but only through the supra pubic fistula. Unhappy indeed is the man who, in addition to this, has an ammoniacal urine.

Urinary back-pressure from obstruction lessens the renal capacity for excretion and mild or severe "back-pressure uræmia" persists. Under such conditions the walls of the upper urinary tract are less resistant to infection and septic products are absorbed causing chronic toxæmia from this source.

After prostatectomy there remains dorsally

and laterally to the vesical outlet a flap of bladder wall covered by trigone and mucous membrane above, denuded below and unsupported by its previous prostate contact. At its free edge is the vesical outlet which normally closes by contraction of certain circular fibres of the bladder wall—the so-called internal sphincter. The anterior attachment of these sphincteric bundles is undisturbed at prostatectomy and resumption of function, which follows promptly after, draws the free margin of the undermined vesical flap forward. This flap is bounded by the vesical orifice anteriorly, the ureteral orifices posteriorly and the margins of bladder attachment on the sides. Inferiorly, well illustrated in Cuthbert Wallace's book on prostatectomy, is the prostatic cavity into which, from weight of urine above, bellies the central part of the flap. This is what happens after prostatectomy, unless the internal sphincter has been destroyed, and it is in this pouch above the flap that residual urine stagnates and, with favourable infection, stone forms there. The sphincter edges which have been denuded at operation may become coapted and stricture occur here or they may even heal solidly together in this position causing absolute retention.

In a paper read before the North Pacific Surgeons Association in December, 1915, and published in *Surgery, Gynecology and Obstetrics*, May, 1916, the rôle of the internal sphincter of the bladder in these cases of post-operative obstruction was called attention to with five illustrative cases and a remedy suggested. Subsequently Denslow, of Kansas City, reported another five such cases and independently suggested practically the same treatment. Quite recently Thomson-Walker of London states that for four years past he has taken similar measures to defunction the internal sphincter after his prostatectomies.

Since this addition to prostatectomy in 1915 my own results, so far as post-operative obstruction goes, have been satisfactory.

The five cases (including two of complete obstruction) on which the original paper was founded, appear therein *in extenso*. To these five I have to add two others as follows:

B. 14-4-18. In 1914 a retired Anglo-Indian gentleman of about sixty, who had had a suprapubic prostatectomy about a year previously, was referred to me for dysuria and hæmaturia. A suprapubic cystotomy was done and a phosphatic stone the size of a duck's egg removed; but no attention was paid to the obstruction at the bladder outlet. I have recently seen this patient and he is content; but his son who lives with him, thinks he should come to see me again for dysuria, provided that I can offer any help without further operation. Evidently the result of these two operations is not ideal and the cause is not far to seek.

In March 1920, H 20-3-15, a vigorous, well-preserved Alberta farmer of seventy-seven was referred to me. His urination was merely a forced dribble although prostatectomy had been done two years previously. As was demonstrated on examination this prostatectomy had been a thorough enucleation. Even immediately after operation, however, urination could not have been satisfactory because sounds were passed from time to time till within a few months of his being referred to me. By none of the usual methods could the opening into the bladder be found. The patient was endoscoped and the bulkhead between bladder and prostate cavities explored. Methylene blue had been previously administered and when the patient forced a few coloured drops of urine through the internal sphincter the opening was thus identified. Through the endoscope a filiform was then passed into the bladder and the endoscope withdrawn. An Otis urethrotome was screwed on to the filiform and made to follow it till the knife was in the bladder. The urethrotome was dilated to 30 (French) and the knife drawn

through the internal sphincter on the floor. The subsequent stream was full size but unfortunately, owing no doubt to coincident dilatation of the external sphincter, partial incontinence followed.

A recent report from him, however, intimates that the internal sphincter is no longer obstructing and that the external sphincter has fully recovered its tone.

At prostatectomy, after the new growth has been enucleated, it is a simple matter to catch the margin of the internal sphincter which lies between the bladder and prostate cavity in a forceps, slit it on each side with scissors and apply the bladder flap thus freed to the floor of the prostate cavity by drawing a Hagner's bag into the prostatic urethra (this bag holds the flap in place and stops bleeding) or simpler still, follow Denslow's or Thomson-Walker's technique of a single slit in the mid line of the sphincter thus making two lateral triangular flaps instead of a single quadrilateral one.

If this precaution is taken at prostatectomy one can feel sure of having the base of the bladder on a level with the outlet, there will be no residual urine to perpetuate infection, or in which stones may form, no straining to urinate with its resultant back pressure on bladder, ureters, renal pelvis and kidneys and less tendency to protrusion of hæmorrhoids or hernia.

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## NOTES ON NIGHT BLINDNESS AT THE FRONT

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NIGHT blindness is the condition in which sight is good by day, or with good illumination, but deficient at night, or with reduced illumination (May). If by drawing the curtains we darken the room to such an extent that the examiner can still read medium-sized print, the patient will perhaps no longer recognize the larger letters, or may stumble against chairs or other objects while walking about the room (Fuchs). The degree of disability may be accurately measured by such an instrument as Föster's photometer.

Night blindness is a symptom occurring in various ocular diseases: (a) Opacities of the media. Peripheral opacities of the cornea and lens may project into the enlarged pupil, and thus interfere with peripheral vision, and: (b) Diseases of the light perceiving apparatus. Ophthalmoscopic signs may or may not be present. In retinitis pigmentosa there is an atrophy of the pigment epithelium, which apparently checks the formation of the visual purple upon which the light adaption of the eye is largely dependent. The histological change is one of extreme vascular sclerosis, both of retinal and choroidal vessels (Collins and Mayou). The outer portions of the field are involved first, and consequent loss of peripheral vision may be so marked that patients must often be led about at dusk. Night blindness is a not uncommon symptom also in disseminated choroiditis, and indeed in syphilitic retinitis in general. It is found in retinitis punctata albescens; and Fuchs has mentioned it as being the first symptom of the disease in gyrate atrophy of the retina.

In such conditions with ophthalmoscopic evidence of disease, abnormal dimness of vision in subdued lights can readily be understood, but it is rather to cases exhibiting this symptom unassociated with fundus signs, that I wish to draw your attention. Collins and Mayou state that "a prolonged exposure to reflected light from sea or desert plains, etc., may, in badly nourished individuals cause night blindness." This appears to be more common in tropical climates,

and improvement soon takes place by protecting the eyes from bright light, and by improving the nutrition. The condition has been called *torpor retinae*, and is analagous to the prolongation of the normal temporary failure of sight experienced in passing from a strongly lighted place to a dark one. Fundus findings are negative, and the condition would appear to be a failure in reformation of visual purple (Collins and Mayou). *Torpor retinae* also may be found in association with xerosis of the conjunctiva, but apparently the two have no other connection than that both are symptoms of a reduced state of nutrition of the eye-ball. The condition has been observed also in starvation, profound anaemia, and scurvy, jaundice, intermittent fever, chronic alcoholism, and pregnancy.

There are a number of points of interest in the physiology of vision in dull illumination (*Scotopia*). These have been brought out by Parsons in his commentary upon the writings of Nagel and von Kries. "Dark adaption is a relatively slow process. It is characterized by a rise in the sensitiveness of the retina to light, which is slow during the first ten minutes of exclusion of light from the eyes, rapid during the following twenty to thirty minutes, and again slow or almost negligible after that period. The general character of the curve of retinal sensibility is the same in all cases, but there are marked individual variations in the rapidity and amount of the rise, thus explaining the fact that some people see very much better in a dull light than others, though variations in the size of the pupils and other factors are not without importance in this respect. In night-blind people there may be only a very slow rise, the ultimate sensibility after an hour being near the normal limit. In severe cases there is very little use after several hours."

Very short exposure to bright light, viz.: striking a match, causes a temporary fall without materially altering the course of the curve. The increase in sensibility after prolonged dark adaptation is more transient than the increase

during the first hour, *i.e.* it is more quickly and completely abolished by exposure to light.

Besides this temporal variation in the sensitiveness of the retina, there is a well-marked spatial variation. In the condition of light adaptation the fovea is the most sensitive part of the retina—while in dark adaptation it is the least sensitive. In other words, the fovea is a region of physiological night-blindness (von Kries). Parsons goes on to show that this relative central scotoma in dark adaptation was long ago recognized by astronomers, who noticed that stars of small magnitude were seen better if viewed somewhat eccentrically. In the case of the Pleiades, for example, direct fixation shows four or five stars only, while by indirect fixation a number of weaker stars become visible. Although relatively night-blind to the periphery, the fovea is capable of a slight degree of dark adaptation. The peripheral rise in retinal sensibility is rapid, from 1 degree to 4 degrees around the fovea, then slow to a maximum between 10 degrees and 20 degrees (Brener and Pertz), beyond which it falls. It has been shown by various observers that the rise of the curve of sensibility in dark adaptation varies with the size of the area of retina stimulated, and with the nature of the light; also that sensibility is about twice as great with two eyes as with one (binocular summation of stimuli). It is pointed out that scotopia is in every way allied to total colour-blindness. After a prolonged stay in a feebly-lighted room coloured objects are viewed in a dim light. The colours cannot be distinguished, but all appear to be of various shades of gray—that is to say, the eye is totally colour-blind. The differences exhibited by photopia and scotopia are so great as to suggest that they are carried out by different retinal mechanism. According to the duplicity theory of von Kries, the rods are the organ of scotopic vision, and the cones of photopic vision. The strongest argument in favour of this theory appears to be the fact that the visual purple is limited to the rods, and that the curve of chemical sensitiveness of this substance coincides with the scotopic luminosity curve.

As might be expected, the problem of night-blindness was relatively a more important one in the late war than in ordinary civil life. At the Front the night was often the time of greatest activity,—of patrols, wiring parties, collections of wounded, trench reconstruction, and forwarding of supplies to the line—and all this work had to

be carried on, frequently over a difficult terrain, in complete darkness. In ordinary life, the individual generally has the assistance of artificial light after dusk.

From the earliest days of the war, medical officers were called upon occasionally to deal with men complaining of special difficulty in seeing after dusk. Personally I had met with a few of these in the 1st Canadian Division in France; but it was not until 1917 that the opportunity of making an extensive study of the problem presented itself. In the summer of that year, the D.D.M.S. of the Canadian Corps, now consisting of four Divisions, decided to try the experiment of making the Corps self-sufficient in its ophthalmic work, as far as this might prove practical. He accordingly asked Lieutenant-Colonel John Gunn, of Calgary, and myself to set up an eye clinic where we could see a sufficient number of cases and report upon the advisability of the project. This was done, and about one thousand men complaining of ocular troubles were examined. Amongst these, complaints of night-blindness were not infrequent. For example, a soldier who had been on a working-party at night had been noticed by his sergeant to fall into shell holes in the path, which were avoided by the others. In only a very few did one find any ophthalmoscopic evidence of disease—one or two cases of retinitis pigmentosa, and other forms of retinal degeneration, due to traumatism, etc. A large percentage was suspected of malingering. If in routine examination the visual acuity was good, the fundus normal, and there was no error of refraction, the case became one of discipline to be handled by the platoon commander, after the regimental medical officer had been notified of the facts. A little watching of the man might show a distressing night-blindness in the line, which resolved spontaneously as he sped through the darkness to an estaminet when the regiment was out in rest. In most instances where regimental observation seemed to have established a real disability for night vision in a man, it was found that there was an error of refraction present. This was especially noticeable in cases of hypermetropia, either with or without astigmatism. The explanation would seem to be that the smaller pupil of the hypermetrope interfered to a more or less marked degree with the peripheral field of vision. Absence of accurate focus of light rays on the retina due to any marked refractive error, however, seemed to cause

disability in dim lights. Correction with suitable glasses proved very satisfactory. I do not believe that any cases of torpor retinae due to malnutrition were observed; the rationing of the Army was much too good. Neither do I consider that fatigue was *per se* a factor in producing the symptom.

One feature in trench life was the nightly illumination due to star shells and Verey lights. These produced a very intense white light, followed by a flickering which was extremely disturbing to the eyes; and their extensive use must have interfered to a very marked degree with the process of dark adaption. It would seem that even amongst "normal" eyes, some are physiologically more night-blind than others, and all such would be at a special disadvantage under these circumstances. A few cases which seemed to come under this category presented

themselves, and I was able to satisfy myself, by a test after a suitable time in a subdued light, that their dark adaption was sub-normal.

In conclusion it might be said that although the problem of night-blindness was of more importance in war than it is in civil life, it is of sufficient interest to encourage further research. Variations from the normal, from several causes, would appear to be not uncommon.

#### CONCLUSIONS

1. True night-blindness at the Front, unassociated with signs of disease was chiefly due to errors of refraction.
2. Intermittent glare from star-shells, etc., interfered with normal dark adaption.
3. Normal eyes may exhibit physiological variations in power of dark adaption.

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#### HELP

MANY medical students of the senior years, also several 1921 graduates, have made application for appointments during the coming summer.

*Graduates*:—Available in June for indefinite periods.

*Undergraduates*:—June till October inclusive.

*Locum Tenens*:—For whole summer or shorter periods, suggesting One Hundred Dollars per month as remuneration.

*Assistants*:—Larger number of applicants in this class—more bent upon gaining experience rather than emoluments.

For the convenience of the profession and the students, the office of the Ontario Medical Association situated at 127 Oakwood Ave., Toronto, has undertaken to act as a clearing house. Further particulars will be found elsewhere in this issue. Hospitals requiring internes are also invited to use the service.

The whole plan is an experiment, never having been undertaken previously, so far as can be ascertained. It appears to have particularly appealed to the students. The response from the profession will obviously indicate success or failure of the undertaking.

## THE PHYSIOLOGY AND PHARMACOLOGY OF THE MAMMARY GLANDS

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THE mammary glands consist of branching tubes lined with a cubical to columnar epithelium. The best authorities agree that the milk is not produced by a process of cell degradation or breaking down, but is a secretory process such as occurs in other glands or in the kidney.

The glands are phylogenetically and embryologically from the same source as the other glands of the skin. They are abundantly supplied by nerves, branches of the subclavicals and intercostals. The sensory nerves are abundant, especially from the mamilla, and their reflex connections in the central nervous system are important. No secretory nerves have been demonstrated. Many attempts to obtain secretion by electrical stimulation of the nerve trunks to the glands have been made, but always without success, Röhrig<sup>40</sup>. Even drugs like pilocarpine, Hammerbacher<sup>23</sup>, and MacKenzie<sup>30</sup>, and physostigmine, which cause the other skin glands to secrete abundantly, fail to produce an effect here. Yet the following phenomenon has often been observed. If both breasts are well filled with milk, and the baby put to one of them, the other breast gives a spurt of milk and may even flow for some minutes. This effect can only be reflex, yet the efferent nerves producing it cannot be found. Anger, fear and worry are supposed to produce failure in milk production, and Mironow<sup>41</sup> in a long and careful series of experiments on goats, showed that pain did decrease the flow. Although pilocarpine, the great stimulator of skin secretion, fails to produce secretion, atropine, its antagonist, which decreases skin secretion, will also, even if given intravenously, decrease the secretion of milk, according to Hammerbacher<sup>23</sup>. MacKenzie<sup>39</sup> could not confirm this observation.

Goltz and Ewald<sup>22</sup> found that bitches whose spinal cords were destroyed had a normal development of the breasts when they became pregnant, and secreted milk in a normal fashion. Mironow<sup>41</sup> found that on denerving a gland, it

secreted only 35 per cent. to 45 per cent. of the milk given by the other glands of a goat, but this gland, when the goat again became pregnant, seemed to produce a normal amount of milk. Eckhardt<sup>12</sup> had the same result in an experiment performed by him. Ribbert<sup>47</sup> transplanted a gland to the ear of a rabbit, which gave milk when the rabbit gave birth to young. Pfister<sup>44</sup> confirmed this observation. A nerve connection is not essential.

For the growth and development of the mammary glands, functioning ovaries are necessary (possibly the testes have the same action), but after lactation is established, removal of the ovaries does not lead to the disappearance of milk. The presence of the corpus luteum in the ovary, the foetus in the uterus, or the placenta, have all been supposed to be causes of the marked development of the glands during pregnancy, and the expulsion of the placenta is supposed by Hildebrandt<sup>29</sup> to remove the source of production of an inhibitory substance which hinders lactation until after child-birth. D'Errico<sup>10</sup> injected blood of pregnant bitches into lactating ones and inhibited secretion. MacKenzie<sup>39</sup> believes that he confirmed this observation. He found that if he injected pituitary extract at half hour intervals, the amounts of milk given in response to each injection declined but slightly. If, however, before giving his second injection of pituitary, he gave an injection of an extract of either placenta or foetus, the second injection of pituitary produced very small response, smaller than the third one. Lactation can be produced before delivery, however, by having a baby nurse at the breast. Starling and Claypon<sup>55</sup> made repeated injections of extracts of foetus into virgin rabbits and saw a development of the mammary glands, and in time a few drops of a watery milk-like secretion could be expressed. These experiments have been repeated by others, Foa<sup>17</sup>. Biedl and Königstein<sup>5</sup> implanted placenta in the peritoneum without effect on gland development. Embryo similarly implanted caused

a growth of mammæ, but no milk. They found injections of foetal extracts more successful. These experiments are, however, not very convincing, as Heape<sup>28</sup> reports that a similar development of the breasts occurs not infrequently in bitches "lined" at the œstrus, but not successfully impregnated, at or about the time that delivery would have occurred had they become pregnant. Cases, too, have occurred in which milk has been secreted in non-pregnant animals and women who have suckled young. Hill<sup>31</sup> got 120 c.c. milk from a virgin kid which was milked at intervals for three months, yielding in all 1900 c.c. In the case of Rosa-Josepha Blazek, pygopagous twins, when one became pregnant, both lactated. We know as little of the endocrine causes of milk secretion as of the nervous cause. It is true that pituitrin does cause a secretion of milk, Ott and Scott<sup>42</sup>, Schafer<sup>51</sup>, and MacKenzie<sup>39</sup>. It has been suggested that this is entirely due to the known effect of pituitrin on smooth muscle, which it causes to contract, and that milk already secreted is only expelled by the contraction of the ducts. I do not consider that there is any experimental evidence for this, and Hammond<sup>24</sup> believes he has disproved it. If the gland be forced by pituitrin to produce an excess of milk at any one milking there is a corresponding decrease at the next, Gavin<sup>20</sup>, Hammond<sup>24</sup>. Pituitrin cannot be used to produce a steadily increased milk supply. Lederer and Pribram<sup>37</sup> obtained a similar increase in milk on injecting a placental extract. Basch<sup>3</sup> and Bouchacourt<sup>6</sup> have both claimed that placenta fed to patients increased the milk production. Their work has met with little credence or support from other observers, and it is possible that they did not exclude psychological factors. Some increase in milk supply is obtained by injecting extracts of corpus luteum, pineal gland, lactating mammary gland, involuting uterus, Schäfer<sup>51</sup> and MacKenzie<sup>39</sup>, but this is like the pituitary increase, very evanescent.

Suckling or its equivalent is necessary to produce and maintain the milk supply. The milk secreted during suckling is richer than that lying preformed in the gland, Hardy<sup>26</sup>, Ackermann<sup>1</sup>. Short periods between suckling increase the fat content alone, Crowther, Linfield, and Lipman<sup>9</sup>, but in time seems to decrease the amounts. It appears that the gland is unable to secrete against positive pressure and milk retained in the tubules prevents milk production.

We know of no drugs nor glandular extracts

which produce an increase in the milk supply and the claims of pharmaceutical houses to this effect should be disbelieved. Tonics which increase food consumption will, however, increase the milk supply.

Important constituents of the milk are lactose, caseinogen, lactalbumin, globulin, and fat. The lactose is excreted in nearly constant quantities throughout lactation and even occurs in the colostrum in the same quantity as in milk. As long as the mother is not starving this factor remains practically constant. The lactose seems to be derived from the glucose of the blood stream, Porcher<sup>45</sup>, Paton and Cathcart<sup>43</sup>, Kaufmann and Magne<sup>34</sup>. Foa<sup>17</sup> showed that an extirpated mamma perfused with a balanced saline and glucose produced lactose. Lactose increased temporarily with glucose feeding, Brieger<sup>7</sup>. Adding an excess of carbohydrate not only did not increase milk production, but decreased it, Ssubotin<sup>54</sup>, Kemmerich<sup>35</sup>, Stohmann<sup>56</sup>.

The protein substances show a much wider range of variation, seasonal, Sherman<sup>52</sup>, possibly diurnal, Richmond<sup>48</sup>, and certainly vary with the protein richness of the diet. The protein, indeed, seems to be the controlling factor. Hoobler<sup>32</sup> showed that the best milk ration in man contained one of protein to six of carbohydrate and fat. Animal proteins are better than vegetable, nuts being the best vegetable, and milk the best of all. Milk cannot be produced unless adequate supplies of protein are furnished as food. Any increased milk production must be accompanied by increased protein consumption if it is to be sustained, Ssubotin<sup>54</sup>, Kemmerich<sup>35</sup>, Stohmann<sup>56</sup>, though milk may remain approximately constant even if the animal is out of nitrogen balance, Hart and Humphrey<sup>27</sup>.

The fats show the greatest range of variation, and their production varies with the season and climate, and readily with change of diet. Fats fed in excess of a normal diet increase milk production and fat content temporarily, but not permanently. The fat in the milk is derived both from the food consumed and from fat deposits. Gogitidse<sup>21</sup> showed that a fat with high iodine value, for example, linseed oil, if absorbed by a sheep in quantities, led to a prompt increase in the iodine value of the milk (within twenty-four hours), but that on stopping feeding, the iodine value would remain high for days, and that at the end of twenty-three days the iodine value of the depot fat was still above normal. That is,

the excess fat was in part secreted, in part stored. The fat of the milk comes partly from food, partly from the depots. Maercker and Albert<sup>40</sup>, Rhodin<sup>46</sup>, and Bartlett<sup>2</sup> also have shown that fat-rich rations increased milk supply temporarily and then decreased it. Foa<sup>17</sup> showed that the extirpated perfused pig's gland, when supplied with fat (olive oil) in emulsion, excreted fat in the milk, but could not do so if supplied with soaps or acid fatty acids. These experiments are contradicted in part by the experiments of Hill<sup>30</sup> on cattle, who obtained an increase of 0.2 to 0.3 per cent. on feeding cotton seed oil, but not with other fats, and by the long and numerous researches carried out by Fingerling<sup>16</sup> and his co-workers, who obtained an increased milk and fat production by replacing the barley meal of a mixed diet fed to cows by rice meal, which is richer in fats. The other constituent factors of the food may have affected the results in this case. It may be noted that these workers obtained a distinct increase in milk production by adding to an unappetizing diet of hay, caraway or anise, which led to an increased food consumption by the animals. Tonics and appetizing food readily produce the same effect in man.

The phosphorus content of the food may affect the milk in spite of the large reserve supplies in the bones, Forbes, Beegle, et al<sup>18</sup>, in cows losing calcium, magnesium, phosphorus, the milk production was maintained, but may fall, as in cases by Jordan, Hart and Patten<sup>33</sup>. The calcium content remains under all conditions fairly constant. Cow's milk contains 0.4 to 0.7 mg. iron per litre, human milk 0.8 to 2.1 mg., Edelstein and v. Csonka<sup>13</sup>, but this quantity may fall in unhealthy mothers. The iron supply of the milk is barely sufficient for the child's health if it be nursed longer than about eight months, and if the iron content fall anaemia of the child may occur. I should not forget that the milk contains both water-soluble and fat-soluble vitamins and antiscorbutic substances. Ehrlich and Brieger<sup>7</sup> have shown that it may contain antitoxines, Woodhead and Mitchell<sup>50</sup> opsonines.

If no drugs influence milk secretion, many are excreted in the milk, but the literature is scanty and poor. In many cases toxic symptoms in the child have led to its detection. Quantitative estimations are rare. Amongst the drugs secreted and qualitatively, at least, detected chemically, are alcohol, Rosemann<sup>57</sup>, according to Voltz<sup>50</sup> not more than 0.38 per cent. even in large doses;

iodine, Lewin<sup>38</sup>, Bucara<sup>8</sup>, enough to cause effect on child; salicylic acid, Lewin<sup>38</sup>, Bucara<sup>8</sup>; antipyrin, Lewin<sup>38</sup> Bucara<sup>8</sup>; phenacetin, Lewin<sup>38</sup>. Quinine, according to Lewin<sup>38</sup> passes over into the milk, and affects the child if the mother takes the quinine on an empty stomach, but not if it is full.

Bucara<sup>8</sup> showed that arsenic passes over into the mother's milk, and Lewin<sup>38</sup> quotes a case in which, after 8 mgm. of arsenic had been taken daily for six days, 0.001 gm. (1/60 gr.) arsenic in 100 gm. (3 oz.) milk was found. Erben<sup>14</sup> refers to cases of arsenic poisoning due to cattle eating arsenic-poisoned grass.

Mercury passes over into the milk, if given as calomel, but not by inunction, Bucara<sup>8</sup>. Over eighty years ago, according to Lewin<sup>38</sup>, goats were given mercury inunctions in order that the mercury secreted in their milk might be given to syphilitic babies. Klink also detected mercury in human milk in 1876.

According to Hammond<sup>25</sup> sulphonal taken by the mother caused symptoms in the child.

Evans<sup>15</sup> in 1885 reports a case in which a mother took tincture of opium for three days after child birth, and the next day nursed the child, which died with symptoms of opium poisoning. A similar case is reported by Fürst<sup>19</sup>. The passage of morphine has been proved chemically in animal experiments, as has that of atropine.

Rhubarb passes over into the milk, giving it a yellow colour, and purging the child, as does the jalapin from scammony. Both these have been chemically detected, Lewin<sup>38</sup>.

Bucara's<sup>8</sup> observations were all made on women taking therapeutic doses of various drugs. He detected iodine, mercury, arsenic, bromine, sodium salicylate, aspirin, but not cascara, senna, phenolphthalein, rhubarb, opium, hyoscyamine, and several others. Poisoning has occurred also from the milk of animals which have eaten colchicum-autumnale, hellebore, veratrum, hyoscyamus, belladonna, datura, amanita, ergot; copper, lead, and antimony consumed by animals have caused poisoning in those who consumed their milk, Erben<sup>14</sup>.

May I sum up our knowledge for practical working purposes? First, we may feel quite certain that we cannot increase a failing milk supply by drugs or glandular extracts, but that we can do so in many cases by attention to the mother's diet. She must take plenty of foods, especially protein, she must digest the

same. She must be free from worry and fatigue. She must encourage the baby to suckle strongly and persistently. She must not worry if the milk supply goes off somewhat for a day or two, as with care it will recover.

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## A REVIEW OF THIRTY-THREE CASES OF FOREIGN BODIES IN THE ŒSOPHAGUS, BRONCHI AND LARYNX

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**O**F the thirty-three cases forming the basis of this review, twenty-seven occurred in the writer's experience during five years of special practice; notes and full histories of the other five were furnished me by my colleague, Dr. S. W. Prowse, whom I wish to thank for his kindness in this matter.

**Ætiology.** The direct causes of these accidents are numerous and I shall endeavour to give briefly only those most common according to my own experience. In both œsophageal and bronchial cases in children two important facts stand out: (1) The habit of allowing children to place all sorts of foreign bodies in the mouth while at play; (2) Some emotional crisis causing a quick intaking of air, as in laughing, crying, shouting while running, etc.

In adults, common causes are: (1) Imperfect mastication of food owing to carelessness and too rapid eating, and to imperfections in the teeth, or absence of the same. (2) To these must be added imperfect preparation of food whereby pieces of gristle, bone, or other foreign substances may be served. (3) The presence of tooth plates may be a contributing cause in lessening the sensibility of the mouth. (4) Some foreign bodies are inhaled during periods of sleep or unconsciousness. I have one case in which a complete tooth-plate became detached during sleep and lodged in the œsophagus; another where a small plate became dislodged and was inhaled into the left bronchus, and still another where a man was supposed to have fallen in an epileptic fit and inhaled a tooth-plate. (5) Instances are quite numerous where a tooth has escaped into the lung during extraction under general anæsthesia. (6) Jackson also mentions occupational accidents as where a lather fills his mouth with small nails and, bending his head, swallows one or more of the same. Dressmakers often place pins in the mouth and these escape downward in the same way.

**Symptoms of œsophageal foreign body.** In children there is a history of the child playing with

some foreign body in the mouth, combined with a sudden emotional disturbance—crying, shouting or laughing. This is followed by a period of coughing, choking and maybe vomiting, which lasts continuously for a considerable time, maybe half-an-hour, to be followed by a period of intermittent coughing and choking, which may be present for the next twenty-four hours or longer, when the child is awake. In adults the usual history is that of having swallowed a foreign body, such as a tooth-plate, meat bone, or gristle, during a meal or a period of unconsciousness, to be followed by a series of spasmodic efforts to expel the intruder.

**Difficulty in swallowing.** This may be partial or complete, depending upon the completeness of the occlusion. In the case of disc shaped bodies in either children or adults, liquids pass, but solid food sticks or is regurgitated. The same applies to any irregular-shaped body, as a large tooth-plate. This is the main symptom in all cases.

**Increased flow of mucous.** Is present in the early stages in practically all cases, and is more pronounced in total occlusion and after ulceration and erosion have occurred. The spitting of pus may also occur.

**Dyspnœa, reflex cough and fits of cyanosis** may occur in cases of large foreign bodies, which press upon the larynx or tracheal wall, which is membranous upon its posterior aspect. One may thereby be deceived into thinking that the intruder is in the larynx or trachea, and it is not possible to say offhand in all cases where the body is situated.

Pain is usually not complained of, and is not considered a prominent feature in these cases. On the other hand, these patients often say they have a feeling of discomfort low down in the neck, and will tell you about where they consider the body is to be found. In cases of perforation of the œsophageal wall pain is a prominent feature. This is situated behind and may radiate downwards into the region of the stomach, and is first

of a spasmodic character. There is also in these cases emphysema under the skin at the base of the neck.

*Symptoms of foreign bodies in the bronchus.* The initial attack following the accident is marked by severe coughing spells, cyanosis, and symptoms of obstruction to the passage of air. This attack lasts a variable time, or until the foreign body becomes definitely located. In case of laryngeal bodies there is loss of voice or extreme hoarseness and copious outflow of mucous in addition. In the later stages of foreign bodies in the bronchi the usual symptoms are cough of an intermittent character and expectoration. This is at first of a mucous character, but later becomes mixed with pus. There may also be attacks of severe cyanosis. This I have known to occur upon change of position of the foreign mass. A bronchitis localized to some particular part of the lung, is always suspicious of the presence of a foreign body.

Mistakes have often been made, and a diagnosis of tuberculosis has been given.

*Diagnosis* The routine examination of cases suspected of harbouring foreign bodies, proceeds as below:

1. A careful history of the case.
2. Examination of the pharynx and larynx by means of mirrors.
3. Examination of chest by a competent internist.
4. Examination by fluoroscope and x-ray. A negative x-ray picture does not exclude a foreign body, as many bodies are pervious to the rays and cast no shadow. An atelectatic lung or lobe of same, suggests complete occlusion of the main bronchus, or branch-supplying lobe.
5. The x-ray is invaluable in localization. A picture showing disc-shaped body, with wide diameter from side to side, indicates a foreign body in the œsophagus. If the wide surface is antero-posterior, it is in the larynx or trachea. An oblique position of foreign body in thoracic region

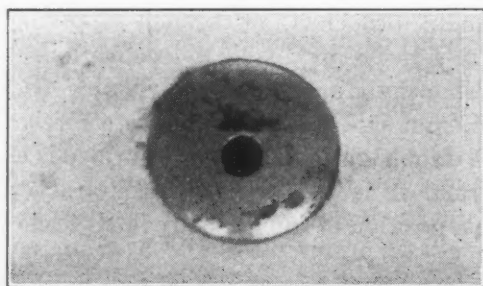
## SYNOPSIS OF CASES

No.	Sex	Age	Length of Sojourn	Foreign Body	Result	Instruments	Anæsthetic	Situation
1....	Female	2½ years	8 hours	Canadian cent	Cure	Brenning's	Chl. & Ox.	œsophagus
2....	Male	1½ years	24 hours	Canadian cent	Cure	Brenning's	Chl. & Eth.	œsophagus
3....	Male	50 years	24 hours	Fish Bone	Cure	Brenning's	Cocaine 10%	œsophagus
4....	Male	37 years	12 hours	Dental Plate	Death	Brenning's	General	œsophagus
5....	Male	5 years	3 days	Head of safety pin	Cure	Brenning's	General	Bronchus
6....	Male	1½ years	3 days	Peanut kernel	Cure	Brenning's	General	Bronchus
7....	Female	2½ years	2 days	Bean	Cure	Jackson's	None	Bronchus
8....	Male	4 years	7 days	Canadian cent	Cure	Brenning's	None	œsophagus
9....	Male	41 years	6 hours	Gristle and food	Cure	Brenning's	General	œsophagus
10....	Male	5 years	1 day	Canadian cent	Cure	Brenning's	None	œsophagus
11....	Female	2½ years	10 months	Melon seed	Cure	Jackson's	General	Bronchus
12....	Male	3½ years	4 hours	Safety pin	Cure	Jackson's	None	œsophagus
13....	Female	1½ years	3 days	Brass button	Cure	Jackson's	General	œsophagus
14....	Male	36 years	5 hours	Meat cartilage	Cure	Brenning's	General	œsophagus
15....	Male	27 years	8 days	Oatmeal	Cure	Jackson's	Cocaine	œsophagus
16....	Male	9 years	6 days	Pencil top	Cure	Brenning's	Gen. & Local	Bronchus
17....	Female	2 years	4 hours	Canadian cent	Cure	Jackson's	None	œsophagus
18....	Male	2 years	2 days	Canadian cent	Cure	Jackson's	None	œsophagus
19....	Female	24 years	4 hours	Bolus & cartilage of meat	Cure	Brenning's	General	œsophagus
20....	Male	3 years	3 days	Canadian cent	Cure	Brenning's	General	œsophagus
21....	Male	2 years	3 days	Plum stone	Cure	Brenning's	General	œsophagus
22....	Female	5 years	1 day	Canadian cent	Cure	Jackson's	General	œsophagus
23....	Female	43 years	30 days	Tooth plate	Cure	Jackson's	General	Bronchus
24....	Male	11½ years	14 days	Screw nail	Cure	Jackson's	General	Bronchus
25....	Female	58 years	4 hours	Chicken bone	Cure	Indirect	Cocaine 10%	L. Bronchus
26....	Female	19 years	2 days	Chicken bone	Cure	Indirect	Cocaine 10%	L. Bronchus
27....	Male	32 years	18 days	Tooth plate	Cure	Jackson's	General	Bronchus
28....	Female	3 years	17 days	Tin whistle	Cure	Brenning's	General	œsophagus
29....	Male	2½ years	2 days	Canadian cent	Cure	Brenning's	General	œsophagus
30....	Male	2 years	7 days	Overcoat button	Cure	Brenning's	General	œsophagus
31....	Male	9 years	29 days	Horseshoe nail	Cure	Brenning's	General	Bronchus
32....	Male	1½ years	4 days	Melon seed	Cure	Brenning's	General	Bronchus
33....	Female	12 years	3 days	Vulcanite button	Cure	Brennings'	General	œsophagus

21 cases 5 years and under. Male, 21; Female, 12. Average age, 13½ years. Longest sojourn, 10 months; shortest, 4 hours. Cures, 32; death, 1. Instruments—Brenning's, 20; Jackson's, 11; Indirect, 2. Anæsthetics—General, 23; Local, 4; None, 6. œsophagus, 21; Bronchi, 10; Larynx, 2.

indicates a main bronchus as the site of the offending body. 6. The final diagnosis is made by examination with the tube, followed immediately by removal of the offending substance.

Case No. 1. Female, age three years, admitted May 12th, 1920. Two and one-half weeks ago child was walking around with tin whistle in her mouth, suddenly gave a cry and threw back her head. She became red in the face, cried and began to vomit; this vomiting kept up at intervals for four days. She slept very well, and had no



Case No. 1—Tin whistle removed from Oesophagus

pain after half-a-day; she could drink, but could take no solid food. X-ray and fluoroscope show foreign body in the oesophagus at the level of the sternal notch. Oesophagoscopy at 4 p.m., under general anaesthesia. Bruning's medium-sized tube was used and a tin whistle found below the cricoid, grasped with alligator forceps and extracted. May 13th. Child's condition good; temperature normal; can swallow easily. Discharged, cured.

Case No. 2. Female, age two and a half years, admitted January 19th, 1917. Child was playing alone in the bedroom and came out coughing and choking, and coughed and choked until she was black in the face and vomited. After this she seemed much better and ate her tea as usual. Since then she has been listless and would not eat. The x-ray shows no foreign body, but left lung completely blocked and in a condition of atelectasis throughout. Bronchoscopy (without anaesthesia). Child's size speculum introduced; 5 mm. bronchoscope passed and speculum withdrawn; some yellow secretion seen presenting; bean discovered completely blocking the entrance to the left bronchus; grasped with larger forceps and partially withdrawn, but escaped in trachea and child had great difficulty in breathing for one or two minutes, and became very cyanosed. Bronchoscope reintroduced as quickly as possible, when bean sank to a lower position and cyanosis

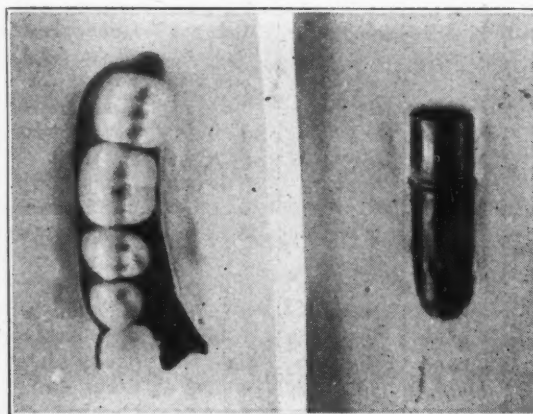
diminished. Considerable muco-purulent secretion came from the left main bronchus and escaped through the mouth. On the third attempt the bean was seen located over the bifurcation. Long strong forceps were introduced, and a good longitudinal hold was secured and the bean was slowly withdrawn along with the bronchoscope and safely delivered. The specimen secured was an ordinary bean much swollen, without envelope, and was entire. January 22nd patient was discharged in good condition.

Case No. 3. Male, admitted March 16th; died April 9th, 1916.

*History.* When lying on a lounge asleep, patient stated that he must have coughed and on taking a quick inspiration swallowed his upper set of teeth. He was seized with a choking sensation and had considerable pain. A doctor was called in who sent him to the hospital. The x-ray reported a foreign body as present, apparently at the bifurcation.

March 16th. Oesophagoscopy under cocaine anaesthesia. The foreign body was seen to be a tooth plate and was firmly lodged in the oesophagus about two inches below the cricoid cartilage. The body could be easily grasped with instruments but could not be dislodged.

March 17th. Oesophagoscopy under general anaesthesia. The foreign body could be seen and grasped, but could not be moved. The patient's condition was still good. He could swallow liquids



Case No. 3—Tooth plate removed from bronchus

Case No. 5—Pencil case in left main bronchus

fairly well, and was receiving liquids by the bowel.

From March 22nd to 26th, inclusive, the temperature was normal.

March 27th. A third attempt at removal with the oesophagoscope was made, but failed. External oesophagotomy was done by a surgeon and

the foreign body removed. This proved to be a tooth plate nearly two inches across and having two exposed hooks which were buried in the mucosa. It was not considered physically possible to remove such a body by the internal route, unless one had an instrument capable of cutting the body into two or more fragments and removing it piecemeal.

March 28th. The temperature shot up to 102.5°. The next day it reached 103.4°. This continued until April 9th. Patient went from bad to worse, becoming each day more septic, until he finally succumbed to pneumonia and general sepsis. The case presented a purely mechanical problem, and if this could have been solved the patient's life could have been saved. In spite of three operative attempts by mouth, the patient's condition remained good. When external oesophagotomy was done, he became rapidly septic and died. This would tend to bear out the statement of Jackson and others, that in external oesophagotomy the prognosis is extremely bad, although we must admit that the surgeon would have had a better chance had he had an opportunity of operating earlier in the case.

Case No. 4. Female, age two and a half years, admitted July 5th. About ten months ago, the child choked as though she had swallowed something; had been perfectly well before that. This choking lasted for about ten hours. She seemed to have a cough all that time, and she has had a wheezing ever since. For the last week it has been worse and she cannot sleep at night. Adenoids removed several days ago, but she has been worse since. At examination, sibilant and sonorous râles were heard on the right side of the chest; the pharynx was negative, the voice and cry quite clear. Bronchoscopy was advised.

July 5th. Bronchoscopy, no anaesthesia, unsuccessful. July 10th. Bronchoscopy, C. E. anaesthesia, unsuccessful. July 15th. Bronchoscopy, C. E. anaesthesia, successful. A melon seed was removed from the right bronchus. So long as the foreign body was in the lung the temperature was elevated, indicating some absorption. July 17th. Patient discharged, well.

Case No. 5. Male, age nine years, admitted June, 1918. Complaining of cough, pain in the chest and loss of weight.

*History.* Patient began to cough May 12th, 1918, after accidentally swallowing a pencil top made of brass or tin. The cough is spasmodic

and mostly dry. Sometimes it is so severe as to cause vomiting and cyanosis. The pain is usually associated with the cough and is confined to the left side. He has lost thirty pounds in weight.

June 10th. X-ray shows foreign body in the left bronchus, and in the upper part of the left lung, opaque areas.

June 12th. X-ray shows foreign body in the same situation and a lack of air in the left lung. The foreign body is probably blocking up the opening of the left bronchus.

June 14th. Sputum examined—no tubercle bacilli found.

June 14th. Oesophagoscopy under general anaesthesia failed to locate the foreign body.

June 16th. Leucocytosis, 42,000.

June 17th. The second attempt under general anaesthesia failed, Jackson's 5 mm. bronchoscope being used.

Fluoroscope showed foreign body low down in the lung. The foreign body was seen and grasped but failed to be delivered. A considerable amount of muco-pus was aspirated from the lung. The patient's condition was better for the next twenty-four hours.

June 18th. Child developed, about 2.30 p.m., a very severe fit of coughing and cyanosis.

3.15 p.m. Fluoroscope showed foreign body to have changed position and to be now resting at the mouth of the right bronchus. This change of position probably occurred during the fit of cyanosis.

4.00 p.m. A low tracheotomy was performed. The foreign body was removed and found to be a pencil cover.

Recovery was uneventful. Discharged July 1st.

Case No. 6. Female, age forty-three, admitted February 19th. One month ago patient thought she had swallowed her teeth, while sleeping. The next morning she noticed that she had some difficulty in breathing. She consulted a physician the night after the accident, and was told that it was a physical impossibility for the tooth plate to go into the wind pipe. The cough persisted, and she felt a sensation in the chest as of indigestion. An x-ray was taken one week ago which showed the plate in the left bronchus. X-ray taken a week later confirmed the findings. On admission, the symptoms were very slight, consisting only of a little cough and expectoration.

February 20th. Oesophagoscopy under ether anaesthesia. Jackson's large laryngoscope inserted and the 7 mm. Jackson bronchoscope passed

without difficulty after slight cocaineization of the larynx. It was passed into the left main bronchus and the foreign body was located in the exact position shown by the x-ray. The plate consisted of two teeth and a metal pin situated crosswise in the lumen of the tube, the pin was buried in the membrane of one side, the teeth in that of the opposite side. Attempts at removal were unsuccessful.

February 21st. X-ray shows foreign body in bronchus about one inch lower down than was shown in the first picture or about three costal from the diaphragm. Fluoroscope shows the foreign body moving up and down with respiration.

February 22nd. Bronchoscopy, 7 mm. bronchoscope introduced without difficulty and foreign body found in the left lower bronchus pretty well embedded in fibrin. This was removed and body exposed. Relative position was the same as before. Attempt to turn by a mechanical hook proved a failure. At this point a 9 mm. bronchoscope was passed. The pin was grasped with large forceps-bronchoscope, forced over to right and freed. Instrument and foreign body were then brought up together.

February 23rd. Condition good; patient walking around; temperature  $99.4^{\circ}$ , voice clear; considerable expectoration.

February 24th and 25th. The expectoration is in large quantity and purulent.

March 4th. Discharged, cured.

Case No. 7. Male, age sixteen months, admitted March 1st. Thirteen days ago the child picked up a screw nail and started to swallow it. On feeling pain in the throat, gave a cry and inhaled it. Had a violent fit of coughing, followed by vomiting. The child was taken to a doctor's office, where an x-ray was taken. This was interpreted as showing a nail in the esophagus.

On February 28th another x-ray was taken, which showed the foreign body in the left bronchus.

March 1st. On admission, temperature was

$102.1^{\circ}$ . Child did not sleep well. There was a cough and expectoration. X-ray showed foreign body in the left bronchus about one-half inch below bifurcation.

March 2nd. Bronchoscopy, under anaesthesia; 5 mm. bronchoscope used. A screw nail was located in the left main bronchus at the point shown by the x-ray. This was removed by means of forceps. Discharged March 4th, in good condition.

In conclusion let me say that I regard bronchoscopy as a specialty within a specialty. This is a very exacting line of work, success in which requires the exercise of very special qualities on the part of the operator. The first of these is patience. Jackson emphasizes this repeatedly and advocates the practice of gentleness combined with mechanical ingenuity, rather than the use of too much force which in difficult cases is always a temptation.

The chief problem undoubtedly confronting the beginner is that of securing sufficient opportunity to acquire knowledge and experience. A thorough study of the anatomy of the subject, of the instruments used, and the method of using them is indispensable. Of great importance is previous practice on the cadaver, and the use of the manikin; also the opportunity of assisting a competent operator in previous operations.

I may also mention the necessity of close supervision and personal inspection of apparatus by the operator himself previous to operation. It is very disconcerting to be compelled to stop in the middle of an operation on account of a defective light or to adjust a forceps which is not working properly.

Last, but not least, I wish to refer to the practice which I shall call "The massing of work". Even in a large city it is highly desirable that this line of work be done by one man. These cases are not numerous, and it is much better and more expedient from the standpoint of the patient that this should obtain.

## DISEASES OF ETHMOIDAL AND SPHENOIDAL SINUSES

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## CLASSIFICATION OF DISEASE

1. Acute catarrhal inflammation.
2. Acute suppurative inflammation.
3. Chronic catarrhal inflammation.
4. Chronic suppurative inflammation.
5. Hyperplastic inflammation.

(a) Hyperesthetic rhinitis type. (b) Type of nasal obstruction by polypi, often recurrent. (c) Type of disturbed function in the adjacent nerves.

6. Atrophic inflammation.
7. Tuberculous inflammation.
8. Luetic inflammation.
9. Mucocoele and pyocoele.
10. Neoplasma.

1. *Acute catarrhal inflammation.* This is quite common and usually is associated with a general rhinitis. The entire nasal mucosa is oedematous and congested. The secretion is serous and spreads over the mucosa of turbinates and meati and is expelled from the nose in large amounts from both anterior and posterior nares. Symptoms are a sense of fulness and heaviness often localized between the eyes. If there occurs obstruction to drainage from the ethmoidal cells with resultant distension, there is pain between the eyes which often radiates to the temporal or parietal areas. If there occurs obstruction to drainage from the sphenoidal sinus, there is usually dull occipital pain and often eye disturbances on the affected side.

2. *Acute suppurative inflammation.* This is an exaggerated stage of 1, and usually signified poor drainage. Pus appears in the middle and superior meati. The pain as described above is often severe. If obstruction to ethmoidal drainage occurs, an abscess may point externally just above or below the inner canthus or internally into the orbit. It is well known that each attack of suppurative inflammation in an accessory nasal sinus, although apparently healed, permanently lowers

the resistance of that sinus to subsequent similar infection.

3. *Chronic catarrhal inflammation.* This is a rather common disease. In this class belongs a large percentage of the cases coming in because of so-called "catarrh" or post-nasal droppings. This commonly follows and is interrupted by frequent attacks of acute inflammation.

The diagnosis is often difficult. After the patient has been up a few hours and has blown the nose several times, there is often little to be seen except, perhaps, pallor and slight glazing of the mucosa of the middle turbinate, superior and middle meati. However, if the patient can be seen early in the morning, being careful not to blow the nose, the dried secretion can usually be seen at its point of emergence into the nose.

The symptoms of this disease are marked. The patient blows much mucus from the nose and draws it into the throat. The pharynx becomes dry and there is much hawking and spitting. Laryngitis or asthmatic attacks are common, as are also eustachian tube disorders. The nasal mucosa is irritable and frequently becomes congested, interfering with normal nasal breathing. In sensitive individuals neurasthenia is common. The mucous membrane of the lateral nasal wall is moderately thickened, pale and sometimes slightly oedematous. If cells are opened the mucosa is pale and covered with thin grayish mucus. There is no pain with this disease and no crusting or odor. Both ethmoids and sphenoid are usually involved. The general health remains good.

4. *Chronic suppurative inflammation.* All the positive signs and symptoms enumerated under 3 are present, plus the following: There is pus in the superior and middle meati. Attacks of pain are common and often severe. The discharge may become foul, and crusting is common. Neuritis, rheumatism or other effects of focal infection are frequent. The general health often suffers. Frequently the anterior ethmoids only, or the posterior ethmoids plus the sphenoid are involved, or the sphenoid may be involved alone.

The mucous membrane over which the pus flows shows a distinct atrophy and obstruction to nasal breathing is uncommon. Microscopically, where the pus comes in contact with the mucosa there is a change from ciliated columnar epithelium into squamous cell type; there is marked round cell infiltration and the glands are primarily atrophied.

In this disease there are quiescent periods, with but little discharge and often no headache, broken by exacerbations of profuse discharge, marked headache and often prostration. These exacerbations usually follow a coryza.

5. *Hyperplastic inflammation.* In 1909 Uffenorde published his work on the ethmoid, and laid particular emphasis on the hyperplastic type; that is, of polypoid degeneration and polyp formation. Previous to that time polyps arising from the ethmoidal region were considered as due to a sinusitis, usually purulent. Uffenorde's idea, that polyp formation in the region of the ethmoid was due to hyperplastic disease of the ethmoid, met with severe opposition, but is now generally accepted. The present day belief is, that this condition is dependent upon a prolonged disturbance in the nutrition of the tissues of the ethmoid and sphenoid. Probably frequently recurring attacks of coryza, with resultant waves of advancing and subsiding inflammation and consequent damage of the mucosa, are a common cause.

It would seem that a mucosa which is very sensitive to irritation (such as is seen in hay-fever-patients) would be especially prone to this disease. It is also well known that once polypoid degeneration occurs within the nose it is apt to spread rapidly and to involve neighbouring structures. Within this class of hyperplastic inflammation several clinical types are found:

(a) *Hyperesthetic rhinitis type.* There is a history of frequent head colds and attacks simulating hay-fever that come on at any time of the year. With these attacks there is much sneezing, watery discharge from the nose and obstruction to nasal breathing.

There is marked congestion and œdema of the entire nasal mucosa with much watery secretion. The external nares and upper lip are often excoriated and eczematous. After shrinking with cocaine-adrenalin solution the only abnormality observable may be a failure of some portion of the mucosa covering the ethmoid to blanch. Slight pressure here with an applicator may break through the thinned bony wall of a cell. Or there may be observed small polypi along the lower

border of the middle turbinate or in the middle or superior meati. Polypi are often found within the ethmoidal cells.

(b) *Type of nasal obstruction by polypi, often recurrent.* There is a history of frequent removal of polypi from the nose with a new crop quickly growing out. Usually there is considerable thin discharge from the nose. Examination shows large or small polypi growing from the ethmoidal region. The ethmoidal cells contain polypi. These cases are easy to diagnose.

(c) *Type of disturbed function in the adjacent nerves.* Dr. Greenfield Sluder has made an extensive study of hyperplastic inflammation, especially in regard to the sphenoidal sinus. He emphasizes three factors which may have an influence on the nerves in contact with the bony wall of this sinus. (1) Extension of the products of inflammation (toxins) through the thin bony wall; (2) direct extension of hyperplastic inflammation to the soft tissue lining the bony canals or fissures through which these nerves pass; (3) actual change in the bony walls of these canals or fissures, causing diminution in the lumina of same. Regarding this last-named factor, he has observed and recorded the actual change in size occurring in measurable canals, such as the outlet of operated frontal sinus cases, where complicated by this disease. He has found these to grow smaller in the period of a few years.

The three nerves which pass through bony canals in close relation to the sphenoidal sinus are especially apt to be affected. These are the optic, the maxillary and the vidian. The oculomotor or ophthalmic nerves may become involved in the sphenoidal fissure, or the abducens may be in contact with a large sinus extending to the dorsum sellæ. These observations with case reports are found in Dr. Sluder's work on hyperplastic sphenoiditis.

*Pathology of hyperplastic inflammation.* Early there is hyperæmia with outflowing of serum into the interstitial spaces of the connective tissue. If mild, the process stops here. If the process advances, the infiltration of serous elements becomes greater, and by force of gravity a mucous polyp soon forms. This process later attacks the bony elements. There may at first be actual bone hyperplasia, but later there occurs thinning and softening of cellular walls.

Microscopically, the external epithelium shows round cell and leucocytic infiltration before polyp formation occurs. In the polypoid areas the ciliated epithelium changes to squamous. There

is marked connective tissue formation beneath the basement membrane and this becomes filled with serous exudate. The mucous glands are hypertrophied, often with cystic dilation of acini. The blood vasa atrophy, the periosteum is hypertrophied. Along the bone are found bone cells, some osteoblasts and some osteoclasts, but in severe cases the osteoclasts always predominate.

6. *Atrophic inflammation.* This disease of ethmoidal and sphenoidal sinuses is found as part of a general atrophic rhinitis. The frequent association of atrophic rhinitis and chronic suppurative accessory sinus disease is noteworthy. The question arises as to which is primary. Especially must this be kept in mind, as it is well known that microscopically and grossly there occurs an atrophy of nasal mucosa when kept long in contact with purulent secretion. This possibility of atrophic rhinitis following chronic suppurative sinus disease adds weight to the indication for curing the suppurative process.

7. *Tuberculous inflammation.* This is a very rare disease. Lockard, in "Tuberculosis of Nose and Throat," 1909, was able to collect from the literature the report of only two cases. The process leads to extensive destruction of tissue with resultant ulcerations and fistulae. These lesions have the characteristic appearance of such lesions elsewhere. The prognosis is bad.

8. *Luetic inflammation.* This class of ethmoiditis and sphenoiditis may start as a simple acute inflammation, but later always becomes purulent. It is usually a tertiary manifestation. Cases have been reported with extensive bony necrosis, but the usual case cannot be differentiated locally from the chronic suppurations of other aetiology. Therefore, every case of chronic suppurative sinusitis should have a blood Wassermann test to rule out lues as a causative factor.

9. *Mucocœle and pyocœle* of anterior or posterior ethmoidal cells may occur, but is much more frequent in the anterior cells. Mucocœle here, as elsewhere, is due to a closure of the ostia, usually by hyperplastic inflammation, and leads to a distension of the cavity or cavities by mucoid material, which is secreted by the glands of the lining mucosa. This gradually increasing tension is accompanied by a reabsorption of bone and there occurs distention of the bony walls. Externally a swelling appears at the internal portion of the orbit which gradually dislocates the eyeball outward and downward. Intra-nasally the anterior ethmoidal capsule bulges toward the septum. These swellings are smooth, rounded and

elastic, giving a sense of fluctuation. The process is painless except that there may be pain in the eye from pressure. The content is a thick mucoid material, varying in color from yellowish to green, and is sterile.

Mucocœle of the sphenoidal sinus seemingly does not occur. An infected mucocœle becomes a pyocœle. There occurs locally redness, local heat, tenderness and severe throbbing pain.

10. *Neoplasms.* New growths are not common in this region. Of those occurring, carcinoma is the most frequent. Sarcoma also occurs. Both are friable and very vascular. They soon slough and lead to extensive tissue destruction. It has been demonstrated that most of the nasopharyngeal fibromata arise from the interior wall and lower anterior wall of the sphenoid bone.

*Remarks.* The above classification has seemed to the writer to give a useful basis for the grouping of clinical cases. It is appreciated; however, that chronic catarrhal inflammation would pathologically be classed as the simplest form of hyperplastic inflammation. Also there occurs hyperplastic inflammation complicated by suppuration. Consensus of opinion is, that hyperplastic inflammation is primary and that suppuration is due to secondary infection. Therefore, these cases have not been given a separate classification.

*Diagnosis.* A carefully taken history is important. One should determine all the symptoms both past and present noted by patient. This is very essential in order to give the case the proper clinical classification.

As to the condition obtaining in the ethmoid and sphenoid at the time of examination, the writer feels that one must depend, above all else, upon the appearance of the visible portion of these structures. This is quite different from the other accessory nasal sinuses, namely, frontal and maxillary, where the final criterion of diagnosis is radiograph, or content of sinus as shown by irrigation. In examination of the ethmoid and sphenoid a portion of the middle turbinate and middle meatus may be observed by anterior rhinoscopy. Also, if a patient can properly control the throat, a view may be obtained of the posterior portion of the turbinates and meati by means of the post-nasal mirror. As a routine measure with private cases this is, we believe, very much less efficient than the examination by the nasopharyngoscope, for example the Holmes model. After applying a little cocaine solution along the floor of the nose one can easily observe all the detail of the posterior portion of the nose. This instrument focuses at

about one inch, so that the region of the ostium sphenoidalis is seen in normal dimension, while objects nearer than one inch, for instance, tips of inferior turbinates, are much magnified. One can easily determine the color of the mucosa or the presence of dilated and tortuous blood vasa so common in chronic inflammations.

The ease of examination by this method is in marked contrast to the difficulty of the postnasal mirror. Often the diagnosis is simplified by having the patient come in early in the morning, having been instructed not in any way to blow or clean the nose. A lateral x-ray will show any cloudiness present and will give the sagittal relations of the sphenoidal sinuses. As a routine test, a blood Wassermann in all cases of chronic suppurative sinusitis may save the physician much chagrin.

If tuberculosis is suspected, tissue examination, search for tubercle bacilli, or guinea pig injection should be made. If neoplasm is suspected, tissue examination is indicated.

*Treatment.* In all acute diseases of the ethmoid and sphenoid the treatment should be palliative. By this we mean constitutional treatment, soothing and astringent sprays, breathing of medicated vapours, etc. If an acute ethmoidal abscess forms, it must be incised, but if an exenteration of cells is indicated, this should be postponed until the acute condition has subsided.

The treatment of chronic catarrhal inflammation must be worked out for each case. Some cases improve on liquid iodex spray (iodine in oil). Some seem benefitted by alkaline nasal douches. Vaccine treatment offers possibilities. Some patients find such a discharge very annoying and distasteful and these cases should be operated on. Chronic suppurative inflammation requires operative treatment. If limited to the anterior or posterior cells, these alone should be removed.

The treatment of hyperplastic ethmoiditis and sphenoiditis also must be worked out for each case. If polypi are present with no symptom except obstruction, removal of polypi may bring relief. However, this type of inflammation, if accompanied by profuse discharge, symptoms of hyperesthetic rhinitis or symptoms of nerve disturbance, indicates operation.

Tuberculosis inflammation had probably best be treated by general hygienic measures. If these cases are operated on, they quickly recur and with increased virulence.

Mucocœle and pyocœle require removal, including the lining membrane.

Carcinomata and sarcomata indicate wide removal, but by the time diagnosis is made, many of these cases are inoperable. Radium therapy should be used in pre- and post-operative cases.

*NOTE.*—We have said that all cases of chronic suppurative inflammation and some of hyperplastic and chronic catarrhal inflammation require operation. By this we mean exenteration of the ethmoidal cells as far as possible, and removal of the anterior wall of the sphenoid.

*Operative Technique.* In 1882, Zuckerkandl gave the normal and pathological anatomy of the accessory nasal sinuses and established the usual relation of the sphenoidal sinus to the optic nerve. Schæffer, in 1885, was the first to open the sphenoid. He and his followers enlarged the natural opening. Killian, in 1900, called attention to the frequent coincident involvement of the posterior ethmoids, and to the possibility of opening the sphenoid through the pars ethmoidalis. Hajek demonstrated that the best results were obtained by resecting both pars nasalis and pars ethmoidalis. It is interesting to note that important surgical anatomy of the sphenoid is only thirty-eight years old and the operative procedure only thirty-five years old.

The exenteration of the ethmoidal labyrinth is done by many methods and with many different types of instruments. The method described below is one which at present seems best suited to the writer's needs. Local anæsthesia with the patient in sitting posture is preferred. General anæsthesia makes the work quite difficult, because the vasa are congested, giving rise to brisk bleeding and consequent obscuring of the operative field. With local anæsthesia and the patient in the sitting posture there is usually enough shock that the operative field is almost free from blood. No preliminary sedative is used. Cocaine solution 20 per cent. with one-third the amount of adrenalin chloride solution, is applied to the nasal aspect of the ethmoid and sphenoid by means of a small cotton applicator. Especial care is taken to apply this to the two points of emergence of the nasal sensory nerves. This is repeated every four minutes up to four applications. Operation is not begun until twenty-five minutes after anæsthesia is started. It is very important to note beforehand, whether the nasal septum will allow space for proper inspection and for manipulation of instruments. If the septum anteriorly deviates markedly to one side, it is a most conservative measure to do a preliminary submucous resection.

Polypi, if present, are removed by Knight's or

other similar forceps. The middle turbinate is removed by Ballenger's knife or by nasal scissors and Knight's forceps. The bulla ethmoidalis is entered by a curette, and, working forward and backward from this, keeping the field always clearly in view, and frequently using the probe, the cells are exenterated one by one, much as one does a mastoid operation. The author has devised a curette with bayonet-shaped handle which allows at all times a view of the operative field. The superior mesial wall is left standing, until all the upper ethmoidal cells have been removed. This guards against damaging the cribriform plate. The lamina papyracea can usually be easily detected by its smoothness and hardness. However, great gentleness and care must be used in the superior posterior portion of this, as perforation here is extremely easy and dangerous. This method is not spectacular or speedy, but has factors for safety which recommend it.

If the posterior ethmoids have been removed, thus exposing the sphenoidal face, the ostium can usually be found. This may be enlarged by Faraci forceps or Sluder's hook knife. If the ostium is not easily found, the sphenoidal face may be penetrated in the upper portion by Sluder's knife and this opening enlarged by the same knife and biting forceps. With suitable biting forceps (Faraci, Hajek or Dentlenk) the anterior wall of the sphenoid can be removed down to where the shelving edge of the sphenoidal floor meets the anterior wall. This is too thick for any knife, and the shelving conformation together with its thickness makes it impossible of removal by any biting forceps. Dr. R. C. Plummer remarked the ease with which Halle removed this portion of the anterior sphenoidal wall by means of electrically driven burrs. This led to my idea of hand burrs and rasps with angular handles. These have proved very satisfactory, for with them the anterior wall may be removed flush with the floor. This gives excellent drainage and makes the post-operative care of sphenoidal cases almost nil.

If after exposure of the sphenoidal face, the ostium cannot be found and there occurs difficulty in penetrating the anterior wall, the writer deems it proper to stop the operation at this point. Then, after healing of the posterior ethmoidal area occurs, and with a dry unobstructed field, the removal of the anterior sphenoidal wall can be done with ease and safety; whereas at the time of the first operation, hæmorrhage, or possible disorientation might introduce an element of danger.

At time of opening the sphenoidal sinus a culture is taken, but absolutely nothing is done to the lining mucosa. We know that the lining of this sinus rarely shows marked pathological change, and that if given proper drainage it shows great recuperative powers. Also there have been reported congenital debiscences of lateral sphenoidal wall which would leave the cavernous sinus unprotected by bony tissue. This should instil into the operator's mind a profound respect for the mucosal lining of the sphenoid.

Here may be mentioned the method of opening the sphenoidal sinuses via the nasal septum without removal of the middle turbinates or posterior ethmoids. The operation is begun as an ordinary submucous resection of the nasal septum. The resection is carried posteriorly to where the perpendicular plate of ethmoid joins the sphenoid crest. This crest is bitten off with strong forceps and both sphenoidal sinuses thus entered. Then by working between the layers of the septum, also through the usual nasal passages, the pars nasalis of the anterior sphenoidal wall of both sinuses can be removed. A long thin-bladed Killian speculum is useful. This is a conservative operation, where there is indication for opening the sphenoidal sinuses, with no accompanying disease of the ethmoids. The writer has followed the above technique several times upon the cadaver, and has encountered no especial difficulty, but has not attempted it upon the living patient.

In any operation on the ethmoidal or sphenoidal sinuses no packing is placed within the nose, unless the amount of post-operative bleeding demands it. The patient is put to bed in the sitting posture until sleeping time, when he is allowed to lie on the side or on the abdomen with the face so placed that the blood will gravitate out of the anterior nares. If continued hæmorrhage occurs, a Stephenson intranasal tampon (3 x 0.5 inch) is introduced along each nasal floor. This is removed within four to eight hours.

The external operation on the ethmoidal and sphenoidal sinuses will not be discussed in this paper.

*Post-operative Care—Results.* The patient is given a bland oil for nasal spray and is cautioned against forcibly blowing the nose. At intervals of four to seven days the nasal tissues are shrunk with cocaine adrenalin solution and silver nitrate solution is applied to the granulating areas, especially to the edges of the opening into the sphenoidal sinus. This must be continued until healing is complete.

In chronic catarrhal and in hyperplastic inflammation the complete sphenoidal operation usually results in a cure. The mucosa takes on a normal color, and there is no excessive secretion; also the neuralgias associated with the hyperplastic process usually abate. In chronic suppurative inflammation, even though a very thorough operation is done, there usually remains some excessive discharge. Even with this, the general health often improves greatly and symptoms of focal infection disappear. If in any type of chronic inflammation the sense of smell has been lost, it usually returns. The nose and throat do not become dry afterward. On the contrary a pharyngitis sicca usually disappears.

It is well known that, if any accessory nasal sinus becomes infected, the resistance of that sinus is permanently lowered and becomes lower with each reinfection. Thus we note that the operated sphenoidal cases, although cured, show with each coryza an acute reinfection often with return of the old symptoms. These infections are treated by applications of weak silver nitrate solutions and they quickly subside.

*Remarks.* This paper presents nothing new. Material has been borrowed from any available source and as far as possible credit has been given the original author. If in some instances this has not been done, we beg leniency.

A special technique is now being used for taking cultures from the sphenoidal sinus. A metal tube about 5 mm. in diameter is placed so that the lower edge is directly over a portion of the sphenoidal opening. A sterile applicator can then be passed along the bottom of this tube directly into the sinus without contamination from the general nasal mucosa.

The chronic inflammations of the ethmoidal and sphenoidal sinuses have furnished a large quota of little understood and hence greatly mistreated cases. The sphenoidal inflammations accompanied by severe headache have often been classed as migraine or simple headache and mistreated as such. Legions of these patients with chronic post-nasal discharge have been consigned to the semi-hopeless diagnosis of "catarrh".

These cases deserve our best endeavours. They are often difficult to diagnose, and even after diagnosis, difficult to cure. Many of these cases lead a wretched existence because of foul nasal discharge, constant hawking and spitting, septic absorption, referred pain, etc. Therefore, we believe justifiable any effort to correlate our knowledge on the subject, or to record accurately the treatment given and results obtained in this difficult group of cases.

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## NON-UNION FOLLOWING FRACTURE

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**T**HE first consideration in a discussion of non-union following fracture, is the definition of the term. It is used here to designate those cases that fail to effect a rigid bony union. Some cases develop a dense fibrous union, and if it be in a

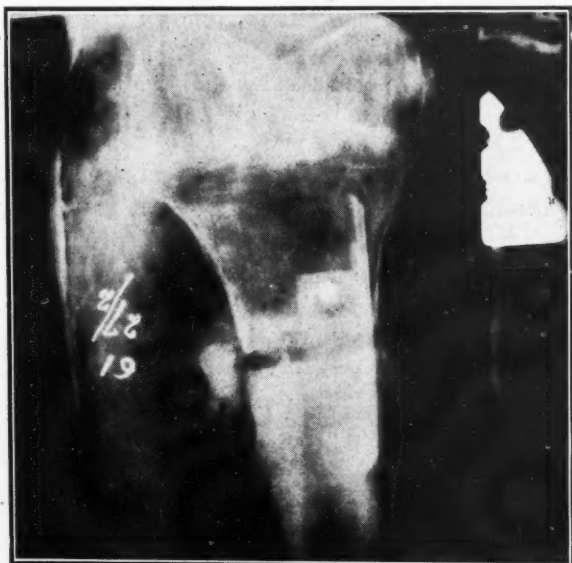


FIG. 1.—Graft from Tibia and plate of bone, and three screws of bone as internal splint. Leg is in plaster.

bone that does not have the stress of weight bearing, it produces very little disability, and will therefore not require interference. Fibrous unions that are dense are frequently very difficult to diagnose. They may be so strong that no flexibility of the limb may be elicited. X-ray may not demonstrate the lack of bony continuity, yet if the patient puts stress on the part, he complains of pain. This pain may render the part more than 50 per cent. disabled. Most cases of non-union are, however, easily recognizable, and the condition obvious.

The dense fibrous unions in weight bearing bones require interference because that fibrous union never becomes bony. Union after fracture occurs by virtue of the proliferating of osteoblasts from the open haversian and other channels. Blood vessels proliferate, and with these capillary

buds osteoblasts extend. In this manner a granulation tissue is built up. If sufficient osteoblasts appear, and meet from either fractured end, bony union results, but if proliferation of fixed connective tissue cells outgrows the osteoblasts, then the ends of the bones and their new-formed bone are divided by a wall impermeable to osteoblasts.

If this, then, is the process of formation of new bone, a fracture should unite, if closely coapted, and no infection occurs within a certain time. Experience teaches us that this time is three or four months. A bone that has suffered a simple fracture and is ununited at the end of four months may develop a denser, more fibrous union, but it will never develop, if left to itself, a bony union.

Non-union in weight bearing bones demands interference, and should in every case either have a graft inserted or a mortis effected.

The underlying principles of bone proliferation



FIG. 2.—Showing union. Plate and Graft almost disappeared. X-Ray taken six months after Fig. 1.

and growth upon which this work is based are elsewhere described.<sup>1</sup> For the purpose of this discussion it may be stated that a bone transplant has no inherent value as a nidus from which bone will develop. It is, from a practical view-point,

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a simple scaffold through which bone will grow, and as it grows, absorb what it replaces.

The principle for the surgeon in bone-grafting is simple. It is essential that there be a wide expanse of raw viable bone intimately and securely



FIG. 3.—A Non-union of Ulna.

opposed to a wide expanse of transplant. If this be attained, revascularization and regeneration of the graft is rapidly accomplished. In mortising, one opposes living fragment to living fragment and union occurs early.

Technique of bone-grafting, and the choice of operation, varies with the bone to be treated. The femur and humerus present problems different from those of the radius and ulna. The femur

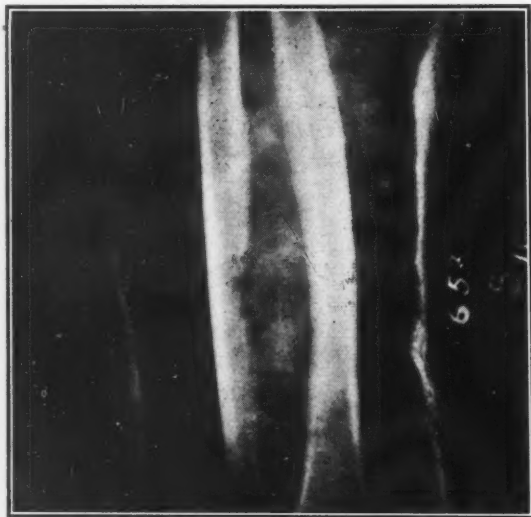


FIG. 4.—Same case as Fig. 3, after a "diamond" graft.

and humerus do not always lend themselves to grafting. If there be little loss of bone tissue, it is preferable to mortise the bones, and by producing a stronger union, to compensate for a little shortening. One point is certain, and it is that



FIG. 5.—Bone graft for non-union of Radius and Ulna. Both grafts were autogenous, but the one in the right (Radius) was boiled.

one should not attempt to fill a defect in the femur or humerus by the application of a transplant, having in view the preservation of equal length of the limbs. It is impossible to procure a graft sufficiently large to bear the carrying stress required in these large bones, and it is futile to expect a transplant to "grow" to the size of its host. It will, if treated gently after union has occurred, increase in density and girth and strength, as any other bone would with increased work, but if the attempt of preserving length is made in the femur or humerus, the graft will almost invariably be broken if the limb is used by the individual. If the humerus or femur is already short, a graft may be employed, but the ends of the fragments must be squared off so that union may occur between these raw ends, and in this way assist the transplant when stress comes.

A mortising operation is performed by making

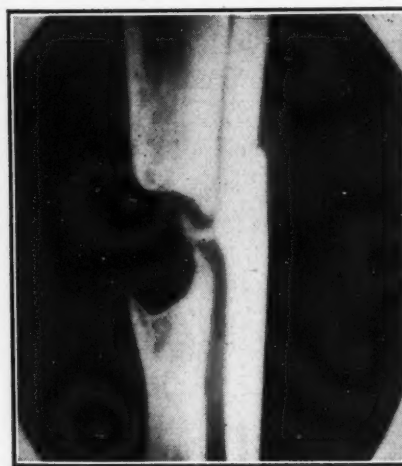


FIG. 6.—Non-union with loss of tissue in Tibia.

one fragment a spear head and the other a cleft. The spear head should be quite long, and fit exactly the cleft in the other fragment. When these are so shaped that the raw bone is intim-



FIG 7.—Same case as Fig. 6, with graft inserted.

ately associated with raw bone, it is essential to hold them immobile. This is readily obtained by the use of screws of bone and plates of bone, as described elsewhere.<sup>2</sup> Kangaroo tendon or wire does not hold the union immobile.

A graft of these long bones is done as above noted, and the union is held with plate of bone and screws of bone (Figs. 1 and 2). The graft employed should be slightly larger than the bed



FIG. 8.—Non-union of Tibia with short Upper Fragment.

prepared for its reception. It is then possible to wedge it tightly, and this in itself may be all the internal fixation required. No closure of the wound should be made until the operator assures

himself that there is absolute immobility in the union.

Non-unions of the radius or ulna or tibia present easier problems. Here long defects may be bridged by transplants, as in each case there is one companion bone to assist in weight-bearing.

The method of choice in these bones is the one where the fragments, having been shelled out of their periosteal bed, and alignment corrected, a saw-cut is made along the desired plane in each fragment. An osteotome introduced into the saw-cut at the end of the fragment is driven longitudinally along the saw-cut and the fragment is split as one would split a stick. This split opens up the bone from the sclerosed ends for a distance of two or three inches, and permits of good viable bone being obtained for contact with transplant. The distance from the end of



FIG. 9.—Same case as Fig. 8. Graft in position.

the split in one fragment to the end of the split in the other fragment is carefully measured. This is the length of graft required. The width required is also measured and the graft cut from the flat surface of the tibia after the periosteum has been reflected. The dimensions of the graft are then outlined on the tibia by a chisel. The graft is diamond-shaped, wide at its middle and tapers from the mid-point to the end. This graft is grasped at its middle in the teeth of a pair of lion-jawed forceps and one end is driven into one split, which widens out to receive it. The other end of the graft is side-slipped into the other fragment. If the graft has been accurately cut, no further internal fixation is required, as one can readily

demonstrate by picking the limb up at its extremity and noting the immobility at site of operation. The wound is then closed. The virtue of the diamond type of graft is that there is such an excellent exposure of bone on both sides of both ends of the transplant, and if the fixation has been efficient, union is certain to occur.

Infection frequently occurs in this type of surgery in military cases. Here infection has been repeatedly demonstrated in scar tissue that is blanched and cool, and has been so for six months or longer. Even with infection present, union may occur. In this case the infection is a great cause of bone proliferation *vide* osteomyelitis. The graft keeps up the infection, and a union may occur if there has not been too long a gap to be bridged. This new-formed bone must come from the ends of the fragments, as no one could conceive that a transplant lying in a bed of pus could be viable. The graft is slowly eroded

by the pus, and after months may be removed, looking very much like a sequestrum.

The external splint used has been plaster of Paris. This has been left on for a period of three months. The cast has then been removed, and if the case was one in which a loss of tissue had made necessary a long graft, further splinting for one or two months was effected.

If infection is going to occur, it usually shows symptoms within thirty hours, giving increase in temperature, pain, and throbbing in the wound. There have been cases, however, where all has been quiet for six weeks after operation, and then infection has begun.

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**Professors Devote Earnings to Medical Research**—Half a million dollars earned during the war as the result of a medical discovery has been presented to the Dermatological Research Laboratories for support of medical research. The donors are Doctors Jay Frank Schamberg and John A. Kolmer, and Professor

George M. Raseiss, all of the University of Pennsylvania faculty. The donation consists of \$373,000 cash and more than \$125,000 in equipment, and represents the profits made by sale during the war of the drug arsophenamine, a United States development of the German drug salvarsan.

## AN ANALYSIS OF SOME CASES OF PERFORATION OF THE STOMACH AND DUODENUM

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THE following paper represents an endeavour to analyze a series of twenty-two cases of acute perforation of the stomach and duodenum. Fifteen of these have occurred in my own practice in the last twelve years or so, and seven have been collected from the experience of some of my colleagues; a more detailed account of these cases has been given in a paper read before the Academy of Medicine, in Ottawa, in March of last year, and for this reason my analysis will be short and without much detail.

It was found that although ulcers of the stomach and duodenum are comparatively common (at least ulcers diagnosed and treated as such by the physician in conjunction with the report of the x-ray specialist), yet the cases in which an acute perforation of such ulcers takes place, are actually very rare, and when this complication occurs it is a decidedly grave and frequently fatal accident.

The onset of the perforation is accompanied by a sudden severe stabbing pain in the epigastrium, and all those symptoms which characterize shock and collapse, giving the picture of an acute abdominal crisis, and it might be said that in a fairly large percentage of the cases the diagnosis is only made after the abdomen is opened. Some surgeons state that in 36 per cent. of cases, the appendix is blamed for the trouble, and that the incision is made over McBurney's point in the exploration, in this series this error was made three times. The main difficulty lies in the choice of a surgeon. If he is experienced in abdominal surgery, he will be able to deal with the real condition as soon as he opens the abdomen, and inspects the region of the appendix. In one of my earlier cases, the appendix from its appearance, seemed to offer sufficient evidence of trouble and the patient, of course, died. Occasionally, on opening the abdomen, the appendix may be found not only abnormally situated, but congested and apparently inflamed, and if much handling of the bowel with dry gauze, etc., is indulged in, may

well mislead the surgeon who lacks abdominal experience. This mistake should be avoided in the great majority of cases, if the surgeon sees the patient early. The onset of severe collapse and shock are out of all proportion to those symptoms seen in an ordinary perforated appendix, especially when the ulcer has perforated directly into the peritoneal cavity, the symptoms of a typical case of perforation are given in the following case.

A chauffeur, aged twenty-seven, was taken with a sudden severe tearing pain in the epigastrium accompanied by symptoms of great shock and collapse. The face was pale and anxious, beads of perspiration bathed the forehead, and there was a sensation of impending death. The temperature fell to a sub-normal level within a few hours, no vomiting occurred, pain in the right shoulder was intense. The abdomen was firmly distended, like a cannon ball, and diaphragmatic respiration was suppressed. The legs were drawn up and the patient feared being touched. There was absolutely no history of previous stomach trouble, and the whole affair was as sudden as unexpected.

A mistaken diagnosis of appendicitis may be easily made in the cases of perforation seen after many hours have elapsed; reaction may have taken place from the shock and collapse; morphia may have been given for the pain by the attending physician, and the patient may seem to be resting in a fairly easy condition. It is here that the most rapid and careful history must be obtained before the surgeon opens the abdomen.

In our series we further found some very startling conditions. In forty per cent. of the duodenal cases and in about 50 per cent. of the stomach cases, the onset was accompanied by severe stabbing pain in the shoulders going frequently right through to the tip of the scapula and lasting for a few minutes to many hours. In one case in particular, this gave the appearance of a rapidly developing pneumonia; it is hardly necessary to say that the chest should be carefully examined in these cases.

This sudden pain referred to the shoulders, of

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which by no means enough is said in the textbooks, is of extreme interest. The ring of the pylorus seems to be a dividing line, and, indeed, embryologically, it divides that part of the digestive tract which is to be the future stomach from the duodenum and the small intestines. If the perforation is to the left of this ring on the pylorus, then the left shoulder suffers; if to the right, the right shoulder, the right-sided distribution of gall bladder disease or perforation is familiar to all of us. In this connection, it may be stated that in the course of experimental work in radiology during the process of which oxygen is injected into the peritoneal cavity for the more perfect outlining of the viscera by their separation from each other, many of the patients complain of severe pain in the shoulders, and that the explanation given by the investigators is, that this pain is due to pressure exerted on the diaphragm by the oxygen, the escaping gas in an acute perforation of the stomach or duodenum probably acts in the same way. This symptom thus explained was not only present, but showed itself as a definite feature in a large percentage of cases, it was particularly noticeable in the case of the chauffeur just referred to.

Vomiting, an all-important symptom, never failed to appear in my cases of perforations in gastric ulcers; in the duodenal cases, however, it occurred either once or not at all, and therefore it is not to be considered as a prominent symptom in perforation of the duodenum. The fixation of the diaphragm and abdominal wall already referred to, is usually absolute and definite. The term "cannon-ball rigidity" well describes the condition.

Perhaps the most puzzling question in all the duodenal cases was the remarkable absence of any reference to previous digestive trouble. In the stomach cases, however, careful enquiry usually revealed the fact that indications of some gastric disorder had long been present. Expecting confidently that patients, the victims of duodenal perforation, would relate to you a month-long or year-long history of indigestion and pain in the epigastrium, one is constantly surprised by the assurance of these patients that they have never suffered a day of illness or that they have always felt perfectly well, the absence of complaint in a large percentage of these cases, should be remembered by the surgeon, as it tends to draw away attention from a real condition in the duodenum. A typical case may be cited: Mr. B., age thirty-five, laborer, strong and vigorous, working regu-

larly, had enjoyed a good breakfast, and had emptied a full dinner-pail at one o'clock. At 5 p.m. he was suddenly stricken with an acute abdominal condition (perforation of the duodenum) though assuring me seven hours later that he had remembered no sickness or gastro-intestinal upsetting at any time in his life. Answers such as these must be frequently listened for in the cases of duodenal perforation. It is little cause for wonder then that approximately thirty-six per cent. of these cases are mistaken for some other acute abdominal condition more especially for perforation of the appendix, as instanced in a recent series of fifty cases in the *English Lancet*.

Regarding these confusions, between two such conditions, it is interesting to note that in all probability pathological conditions in the appendix may often cause a spasm in the duodenum; an x-ray picture might reproduce this spasm and simulate ulcer and its constriction. If only one plate be taken, this might lead to a diagnosis of duodenal ulceration. It would be wise then, to make sure of one's ground with three or more plates, since one normal plate will be sufficient to warn against errors. Twice within the last two months, I have opened the abdomen looking for an ulcer of the duodenum, only to find that the trouble was due entirely to an aggravated appendix. The incision for opening the abdomen, I usually make in the right rectus close to the median line, though one does not question the exact locality, any median incision over the epigastrium is quite well over the area occupied by the expected ulcers. An area that may be covered by the palm of the hand and situated as regards the duodenum on the anterior part of the first portion on a level with the common bile duct, and as regards the stomach close to the pylorus on the anterior surface, but closer to the upper than the lower curvature.

Some of the ulcers found in the series, were clean-cut with little induration, about the diameter of a slate pencil. From these the stomach or duodenal contents might be escaping, others were so indurated that suture by ordinary means was impossible; others again were buried in a mass of adhesions. If these ulcers could be sutured, fine thread in double layer was always used, going wide of the ulcer to insure stoppage of the leak, care also being taken to take a deep bite of the tissues with the sutures. If the case is one where suture is impossible, the thickened cartilaginous-like tissue preventing the covering of the area, there will rarely be time to resect and

perform a gastroenterostomy, the greater endeavour must be to stop the leakage and to close the abdomen as soon as possible; a delay even for a few minutes may mean the life of the patient. In such case (although it has not been necessary in the series) it would be sound surgery to pass a tube into the viscus to bring the subsequent discharge to the surface, and to pack around with gauze (as practiced in a few cases by Richardson) rather than to trust to an omental graft. In a perforation of the stomach close to the pylorus in a Mr. M., age fifty, the ulcer had become covered by a piece of omentum the size of a silver dollar, which though found partly attached and covered with inflammatory lymph, had evidently torn away under some sudden strain. Omentum is a splendid accessory to a weak suture line, but not safe as a means of permanent closure. The performance of gastro-enterostomy after closure of the perforation, is a question which depends on the condition of the patient and the patency of the pylorus. Gastroenterostomy after closure was performed twice in the series. I give a detail of one of the cases.

Mr. M., age sixty-one, perforation of an ulcer on the anterior wall of the stomach near the pylorus. He had been ill for three years with symptoms of indigestion. For the last month had suffered from an almost continuous vomiting, and had quickly fallen in weight to 99 pounds. An operation revealed pyloric obstruction with the acute perforation. A posterior gastro-enterostomy was done immediately after closure of the ulcer and the patient made an excellent recovery, weighing 175 pounds six months later, and to-day thirteen years after, he remains in the best of health.

With my limited experience it would seem reasonable to deduce that "if the pylorus is patent and the vomiting not continuous or persisting with the patient in a desperate condition after some hours of battling with an acute perforation, it would be the better part of wisdom to stop the leak, close the abdomen and return the patient to bed as quickly as possible, rather than to fritter away precious moments with a longer operation, which, at the time, cannot in the least contribute to his subsequent welfare." It may be mentioned here that before closing the abdomen, it is wise to be sure of their being only one perforation since two or more have been found at the same time, or have been known to occur within a few hours of each other. It is also wise to examine posterior wall of the stomach; this can be done by making an opening through the transverse

mesocolon, as in the performance of a gastro-enterostomy.

A vital question is the procedure in cases in which the stomach and duodenal contents are diffused through the abdominal cavity. To what extent should we practice irrigation of the abdomen? In this series the treatment (immediately suture was performed) consisted in mopping up as rapidly as possible with warm moist gauze pads, and, if the case had been seen early and the stomach found almost empty at the time, closing the abdomen without drainage because the upper digestive tract is comparatively sterile as regards its contents, particularly in those stomach cases which have been under treatment by a physician for a long period of time. In cases where, on opening the abdomen, the intestines are floating in fluids, tea, porridge, mucous and gastric secretions, the procedure should be to mop up as much as possible, and as quickly as possible, to put through-and-through sutures in the wound, and to place a tube in the pelvis. The patient should be placed in the Fowler position, and in order to lessen thirst one should give the saline drip by rectum, plenty of morphine should be used, as this drug is undoubtedly our best remedy in shock. In no case of this series was a transfusion of blood done, although this procedure undoubtedly has its value. Cases that died did so either from shock or from a general suppurative peritonitis. They ran a course of from three to thirty hours, and as a rule the longer the case had been perforated, the greater the mortality, particularly as concerned those which perforated into the general peritoneal cavity rather than posteriorly, or into adhesions. The percentage of recoveries was fifty-two, including those perforating either behind the stomach or into adhesions, there were seven of these two types. It is to be noted that the usual percentage of recovery of those cases which perforate into adhesions or behind the stomach is eighty-six. Inclusive evidence of the greater danger to life of the acute perforations into the general abdominal cavity. Sub-diaphragmatic abscess may form following posterior perforations and four of this series came to operation later for this complication. Two died, one of intercurrent pleuritic complication, three weeks after operation, one a year later (malignant complication); the other two cases recovered completely. These cases of perforation above referred to, test to the utmost a surgeon's skill and nerve. Not only must he make a rapid diagnosis, often in a farm house many miles from

a hospital and the technique of the operating-room, at night, perhaps, with only the light a smoky lamp or a few candles can give; no assistance, no nurse, the family and relations questioning and obstructing, then must be considered the advisability of sending the patient miles to a hospital, or the decision to stay and do one's best, must be made. In any case, you, the practitioners, are the men of the hour, and you will be compelled to act quickly. It is unnecessary to detail all the difficulties one may find, as they are known to you all, the depth of the perforation, the difficulty of closure, the continual pushing out on the abdomen of the bowels and the still worse difficulty of getting these bowels back again. The most successful method of meeting this latter emergency is to take a towel rung out of warm water, and to envelop the intestines so as to make a sack such as one sees in a rupture, and to push the edges of the towel into the abdominal cavity. It may be wise in some cases of extreme shock and collapse to give a transfusion, some morphia or other radical supporting treatment, and to wait a reasonable time for reaction to take place, before opening the abdomen. In this particular direction I have followed no easily definable course. I feel sure that almost as many lives are sacrificed by too great a hurry in operating as by an injudicious delay. This question, as well as

that of the irrigation of the abdomen, gastro-enterostomy, excision of the ulcer and after treatment, may be discussed with benefit to us all. If it should be decided to send the case on to a hospital after a full dose of morphine, I must warn you that you may and will endanger still further your patient's life. It seems less risky to operate under the difficulties above enumerated, than to brave the delay and shock which will be caused by the exigencies of country transportation. Two of the cases of duodenal perforation were sent forty miles to the hospital after seven and eight hours respectively, and both died; whilst one case, operated upon under the unfavourable conditions furnished by a farm house, walked into my office six weeks later perfectly.

At best these cases are desperate as compared with the state of those patients suffering with some chronic condition. The latter can travel a thousand miles, and consultations and deliberations can be practiced and perpetrated on them without end. It is the emergency case, however, that tests the ability of the present-day surgeon, and I feel that our teaching in schools and in post-graduate work should have to do principally with the various emergency cases so wasteful of life, rather than with the diagnosis and treatment of rare and impossible diseases which oftentimes offer no hope of cure.

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**A Decreasing Mortality Rate**—Frankel K. Lee, *The Public Health Nurse*, Feb., 1921, Vol. 13, page 73. The Metropolitan Life Insurance Company organized, in 1909, a visiting nurse service for its industrial policy holders. A large company with advanced methods of statistical analysis is able to gauge accurately any changes in the death rate and Dr. Frankel claims that allowing for the operation of other causes, eighteen thousand lives were

saved by the health work done by the company among industrial policy holders in eight years. So by an expenditure of one and one-half million dollars in preventive work, three and one-half million dollars in death claims was saved. Perhaps the most striking feature of the Metropolitan Life Insurance visiting nursing work was that between the ages of twenty-five and thirty-four, the child bearing period, female industrial holders showed a mortal ty reduction of 20.5 per cent.

## THE USE OF PITUITARY EXTRACT AND SCOPOLAMINE-MORPHINE IN OBSTETRICS

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THE introduction of pituitary extract and of scopolamine-morphine anaesthesia to the medical world occurred at about the same time and under somewhat similar circumstances. Both were first presented in a scientific spirit, but in the case of the one, the zeal of the manufacturing chemists, and in the case of the other the seeking after some new thing on the part of the lay press, caused extravagant claims to be made for these substances and in consequence, after the first enthusiasm of the medical profession, a decided reaction occurred. The great drug houses, through their ubiquitous travellers and their literature, assured the general practitioner that a new era had dawned in obstetrics; that he might throw away his forceps and go to his maternity cases armed only with a box of ampoules and a hypodermic syringe. The monthly magazines, especially those intended for the delectation of American female readers, related most wonderful tales of expectant mothers who entered a hospital and after a pleasant sleep had a charming nurse present to the mother, awaking fresh as a morn in May, a baby who the nurse assured her was her own. It was politely, but none the less decidedly, inferred that the great majority of the obstetric physicians who had not yet bowed the knee to this new Baal were old fogies and must remain so until they practiced this latest new method from Germany. Naturally such loose, and even ridiculous, claims caused discredit to fall on the use of both these vaunted aids in obstetrics.

Following the publication in the *British Medical Journal* in 1909 by Blair Bell, then assistant Professor in Obstetrics and Gynaecology in the University of Liverpool, the record of the results obtained from his employment of an extract of the pituitary gland in cases of post partum hæmorrhage, Cæsarean section, intestinal and

vesical atony and shock, various preparations of this gland were put on the market. The history of new remedies as, for example, tuberculin and thyroid extract has repeated itself in the case of this substance in that after extravagant use it has fallen to some extent under suspicion, a suspicion which probably will come to be regarded as in some measure undeserved.

The pituitary body, or hypophysis cerebri, is a veritable cerebral gland, consisting of two portions, an anterior derived from the buccopharyngeal cavity, and a posterior developed from the floor of the third ventricle, with a pars intermedia lying between. The posterior lobe is composed of ependyma, neuroglia cells and small islets of epithelium. Animals may survive its removal for a long time, but when the anterior lobe is removed from adult animals they die, young animals may survive and, if so, they take on fat readily and sexual development is arrested. It is this portion of the hypophysis which, if affected, gives rise to acromegaly or conversely, infantilism, adiposis dolorosa, sexual hypoplasia and diminished carbohydrate tolerance. In the female the pituitary body is one-tenth heavier than in the male. It has been definitely proved that there is a definite functional hypertrophy during pregnancy. While this is diminished post partum the pituitary remains larger in multiparæ than in nulliparæ.

Schaefer and Oliver in 1895 showed that an extract made from it produced a marked rise in blood pressure. Little attention was paid at first to this finding, for the action of adrenal extract on blood pressure was more spectacular. Later Howell showed that it was the extract of the posterior lobe which caused this rise. This was confirmed by Schaefer and Swale Vincent. Schaefer and Magnus also discovered that the extract of the posterior lobe had a diuretic action. Dale showed that posterior lobe extract had a powerful action on uterine musculature,

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causing decided contractions, and Blair Bell was the first to put the infundibular extract to the clinical test. It was his paper which opened the eyes of the medical world. Ott, Schaefer and Mackenzie demonstrated a powerful galactagogue substance in the posterior lobe.

In the *Canadian Medical Association Journal* of September, 1913, B. P. Watson of Toronto gave a summary of the obstetrical uses of pituitary extract, a summary which Munro Kerr terms the best in the English language. To Professor Watson's article I am greatly indebted.

Watson's summary is as follows: (1) Pituitary extracts have a powerful effect in inducing and strengthening uterine contractions. (2) The type of contractions induced is similar to that which occurs normally although there may be a tendency to prolongation of the pains. (3) Such prolonged contractions result in slowing of the foetal heart but the child is seldom in danger. (4) When given in the later part of the first, and in the second stage of full time labour, the polarity of the uterine contractions is not interfered with, but in early abortions and early in the first stage a spasm of the os may occur. (5) Its chief field of usefulness is in the first and second stage of labour when there is delay due to feebleness of the pains alone or when combined with other complications such as malpositions of the head, malpresentations, multiple pregnancy, slight narrowing of the pelvis, etc. (6) In the induction of abortion, in the treatment of abortion already in progress and in incomplete abortion, its action is so uncertain that it is not to be recommended except in cases where the os is widely dilated. (7) In the induction of premature labour its effects are uncertain but if sufficient dosage be given they may be good. (8) In the induction of labour at full term and after better results are obtained than in premature cases. (9) It gives good results in cases of post-partum hæmorrhage but is not superior to the various preparations of ergot. It has the power of sensitizing the uterus so as to allow these preparations to act more powerfully, the combination being most effective. (10) It is a useful adjunct in the treatment of placenta prævia used in conjunction with rupture of the membranes, the use of hydrostatic dilators or turning. Berkley and Bonney state that pituitary extract or ergotin should only be given in exceptional cases in the first stage in the uterine lethargy in primiparæ.

Williams' opinion of pituitrin is as follows:

"I believe that we have in pituitrin a potent drug, which, while extremely useful in properly selected cases, may lead to disaster if injudiciously used. Furthermore, I consider it probable that its employment will repeat the history of ergot which was formerly used indiscriminately in all stages of labour, but is now employed only to stimulate the contractions of the emptied uterus, and that the use of pituitrin will eventually be limited to the latter part of the second stage and then only as a competitor with low forceps."

#### THE USE OF SCOPOLAMINE-MORPHINE IN LABOUR

Scopolamine is the alkaloid derived from *Scopolia atropoides* or *S. carniolica* of Europe or *S. berida* or *S. japonica* of Asia. *Scopolia* is one of the solanaceous plants, and is allied to stramonium, belladonna and hyoscyamus. The alkaloids scopolamine and hyoscin are chemically identical. For clinical use the hydrobromide salt is employed.

In 1902 Steinbuckel reported the use of scopolamine and morphine in labour. Kronig and his assistant Gauss of the Freiburg Clinic in 1907 first brought to the attention, not only of the medical profession, but also of the civilized world, the combined use of the two drugs in labour to produce what was poetically termed *Damerschlaf* or *Twilight Sleep*. A vast amount of literature on this subject has accumulated and twilight sleep which was so lauded in the lay press has among the medical profession its enthusiastic supporters and also its determined opponents.

The technic laid down by Gauss is as follows: The solutions must be freshly prepared. Narcophen, a proprietary preparation, a meconate of morphine, is used. The scopolamine must be that prepared by Straub, as other preparations have been found to be unstable. When labour has clearly begun, the woman is removed to a darkened private room. Cotton wool is placed in her ears, dark spectacles over her eyes and great care is taken to avoid as far as possible external stimuli. An initial dose of 1-6 grain of morphine or the equivalent dose of narcophen with 1-150 to 1-200 grain of scopolamine is given. Thereafter, various memory tests are applied, the idea being to keep the patient in a state of amnesia. The morphine is not repeated except in extreme cases of restlessness. The scopolamine is repeated, not after any definite lapse of time, but if thirty minutes after being shown an object the patient

still remembers it, another dose of 1-400 grain is given.

In successful cases the patient passes into a somewhat somnolent condition with flushed face, injected eyes and an accelerated pulse rate and sleeps quietly in the interval between pains but complains bitterly during their continuance. A competent attendant remains continually in the room. In the second stage, ether, chloroform or nitrous oxide is often required. After delivery the child is removed from the room and on being wakened at the end of three or four hours, the patient is usually surprised to learn that her baby has been born. It is necessary to add that the element of suggestion enters very largely into this method and that it is not possible in the great majority of cases to have labour conducted under such ideal conditions.

Rongy in 1915 published a paper in the *American Journal of Obstetrics* wherein he reviewed the present status of twilight sleep based on a collective study of over 2000 cases. His observations were: (1) The Gauss method was followed in 90 per cent. of cases. (2) Standard or stable preparations of scopolamin were not used at first. Better results were obtained when a preparation such as that of Straub was used. (3) Morphine or narcophen was not repeated except in extreme cases of restlessness. (4) The treatment should not be instituted until there are definite signs of labour. (5) 90 per cent. of the cases were treated in a special room. (6) 80 per cent. of the cases were primiparæ. The average number of injections for primiparæ was  $5\frac{1}{2}$ , for multiparæ, 3. (7) In about 60 per cent. the first stage was apparently shortened. The second stage was definitely prolonged. The third stage was not influenced. (8) 10 per cent. showed restlessness requiring restraint. (9) Four cases showed signs of active delirium during the post-partum period, but all recovered in a comparatively short time. (10) Treatment was discontinued in 4 per cent. of cases on account of: (a) too early administration, (b) disproportion between foetal head and pelvis, (c) cessation of labour pains, (d) marked alteration of foetal heart sounds, (e) repeated injections without any effect. (11) There was no maternal mortality. (12) Forceps were used in 26 per cent. of the primiparæ. Of these operations 80 per cent. were low cases. (13) A general anæsthetic was used during the stage of expulsion. (14) 78 per cent. of the babies cried spontaneously, 16 per cent. were oligopneic and required resuscitation,

3 per cent. were born asphyxiated but recovered, 3 per cent. were still born. (15) This form of anæsthesia is contra-indicated in primary uterine inertia, in labour associated with hæmorrhage, in cases where the foetal heart sounds are feeble, and in multiparæ with a history of short labours.

His general conclusion is that the method is valuable in primiparæ of highly emotional type and in multiparæ in whom we anticipate a long and tedious labour. Berkley and Bonney state that scopolamine-morphine anæsthesia is especially indicated in cases of painful rigid cervix in the first stage with reflex inhibition of the uterine contractions and that the method is best suited to patients of nervous temperament to whom the anguish of labour is insupportable.

Hirst in his text book states that the best anæsthetic for the first stage, if one is demanded, is morphia and scopolamine. Personally he does not approve of this anæsthetic carried to an extreme degree or continued in the second stage of labour.

De Lee has the following dicta:

(1) The drugs may not be used to produce anæsthesia or insensibility to pain, only amnesia or forgetfulness. (2) The method is not adopted for general use in the home but only in maternities with a sufficient and efficient staff. (3) The foetal heart tones must be noted from eight to four hours before the actual delivery. Personally he does not like the method.

Williams in his text book sums up thus:

"The fact that we cannot promise a satisfactory subjective result to more than three patients out of four makes it apparent that the method is not ideal and it is my belief that it will gradually fall into desuetude or at least its use will be restricted to a small group of neurotic patients in whom it is desirable to reduce suffering to a minimum. In addition to this relative defect several serious objections are inherent to this form of anæsthesia. In the first place, while some of its enthusiastic advocates claim that it results in a definite prolongation of the second stage necessitating more frequent instrumental interference with its additional danger of infection. In the second place, it is attended by a definite, but slight, increase in the foetal mortality estimated at between 1 and 2 per cent. which is apparently due to direct poisoning of the foetus.

A large proportion of the children are born in an apnoic condition, a smaller number are deeply asphyxiated but can be resuscitated without great difficulty, while occasionally the

asphyxia is so deep that resuscitation is impossible. Apparently it has no effect upon the maternal mortality nor upon the incidence of post-partum hæmorrhage.

From my experience, the method is not adapted to private practice for three reasons: First, that it can only be expected to give ideal results when it is carried out by a trained personnel under suitable conditions; and second, that in a considerable proportion of cases it is attended by a degree of restlessness and excitement which may require physical restraint, and which makes a very painful impression on those interested in the patient. Finally, it makes such demands on the time and nervous equation of the physician as to put it beyond the reach of all but well-to-do patients, as the already underpaid obstetrician cannot be expected to devote twelve or fifteen hours of continuous service to a normal delivery which ordinarily requires but a few hours of his time."

In the 1912 edition of Tweedy and Wrench's "Practical Obstetrics," J. R. Freeland and Bethel A. H. Solomons report on a series of one hundred primiparæ in the Rotunda. Their conclusions are:

"(1) Scopolamine need not be given in larger doses than 4-120 grain. (2) In the majority of cases it may be given advantageously by mouth. (3) It is undesirable to keep patients in a darkened room whilst under its influence. (4) The patient should be carefully watched. This can be done equally well by the nurse as by the doctor. (5) No ill effects to mother or child need be expected to follow the rational administration of scopolamine. (6) Whilst its chief indication will be found during the first stage of labour, the fear of rapid delivery following its use is not a contra-indication."

Munro Kerr of Glasgow is of the opinion that the results of scopolamine and morphine injections have been fairly satisfactory. He states that nearly all authorities are agreed that labour is slightly retarded but that there is no predisposition to post-partum hæmorrhage. The method involves careful supervision of the patient by the accoucheur himself or by a very specially trained assistant. The ill effects on the foetus seem to be often due to the repetitions of the morphine doses.

From the foregoing quotations it is apparent that the questions concerning the use of both substances are still in the stage of controversy or are at least *sub judice*. Of the two, pituitrin has the more settled place. It is generally

agreed that it is of value in post-operative intestinal paresis and vesical atony in the field of surgery, and in post-partum hæmorrhage and in Cæsarean sections in the field of obstetrics. It is also agreed that it is of little or no value in cases of abortion or in the induction of labour especially before term. There remains then the question of its value in accelerating labour already in progress. To my mind the only indication for its use in this respect is in secondary uterine inertia in multiparæ where the head is on the perinæum and only a few strong pains are necessary to bring about its expulsion. We are all familiar with the elderly multipara whose pains die off just when they should be most effective. In these cases pituitrin acts wonderfully well. On the other hand, it should not be given before the os is fully dilated. I think it is wise not to administer it to primiparæ on account of the danger of having a severe laceration of the perinæum, retention of the placenta, or of affecting the child injuriously.

The question of dosage must be considered. While in the early days I have given pituitary extract in doses of one cubic centimetre without any untoward effects in the great majority of cases, I recall one case where it produced contractions so severe and painful that it was necessary to administer chloroform almost to the surgical degree. In another case where 1 c.c. was given an hour before the child was born there was considerable delay in the separation of the placenta. I think that a single dose should not exceed 0.5 c.c. or 8 minims. Kellogg of Boston is accustomed to give 5 minims at a dose and if the desired effect of strengthening the uterine contractions is not obtained in fifteen minutes he repeats the dose, but gives no more than two doses.

With regard to scopolamine and morphine my personal feeling is that the combination of the drugs is superior to the use of morphine alone. I have been accustomed to use a hypodermic tablet made by Parke Davis & Co., containing 1-6 grain morphine hydrochloride and 1-150 grain true scopolamine hydrobromide. This dose is given in the first stage when the pains have lasted some time without marked increase in the dilatation of the os and the patient is asking for some relief. The morphine is not repeated. Should a subsequent dose be considered necessary, and that should be only exceptionally, the dose should not exceed 1-200 grain of scopolamine. The ideal indication for the use of scopolamine-

morphine injection would be in the case of a highly strung primipara with a rigid cervix, an occiput posterior position of the vertex, with no disproportion between the foetal head and the pelvis, and further, that the patient should be either in a hospital or have two well trained nurses. The injection should be given in the first stage when the pains are not more than five minutes apart and last at least half a minute by actual count. On no account should morphine be given within two hours before the birth of the child. On two occasions I have seen children born apnoeic and who, while they could readily be made to breathe, required watching for half an hour before breathing occurred with normal frequency and depth.

My general conclusions are these: (1) That in carefully selected cases and under certain

definite conditions both pituitary extract and scopolamine-morphine injections are of marked value in obstetrics. (2) That when these conditions are not met with the results may be disastrous. Both are potent drugs and are not to be given lightly or unadvisedly. (3) That in times past the dosage has been too great. Single doses of pituitrin should not exceed eight minims. Doses of four or five minims are preferable. The total dosage before the uterus is emptied should never exceed sixteen minims (1 c.c.). In scopolamine-morphine anaesthesia the initial dose should not exceed 1-6 grain of morphine or 1-150 grain of scopolamine. In repeating the latter drug not more than 1-200 grain should be given. Morphine should not be repeated. (4) That scopolamine-morphine anaesthesia is more suited for use in hospitals than in private practice in homes.

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**In Honour of Mme. Curie**—The June issue of the *Medical Review of Reviews* will be a special radium number dedicated to Mme. Curie. The issue will consist exclusively of articles on radium and its uses, written by the most prominent radiologists in the United States and Canada.

Copies will be sent complimentary to every physician interested in the uses of radium and any readers of this item who desire that issue may have it by asking for it from the *Medical Review of Reviews*, 51 East 59th Street, New York.

## BENIGN NEOPLASMS OF THE FEMALE PELVIS

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I HAVE had the temerity to come before you and present a paper upon a subject which is one of the oldest in the surgical field; that of benign growths which occur in the pelvis. The literature is filled with reports and studies of this all important subject, and while perhaps there is nothing new which I can add to that which has already been published I may at least hope to refresh our memories. The importance of the subject is one which we will all admit because of the frequency with which these growths are encountered.

*Historical.* The first record of the successful removal of a uterine neoplasm of this character in America was one published by Dr. W. L. Atlee, the operation having been performed seventy-six years ago. From that time on this field has been thoroughly and conscientiously explored by many of the most famous members of our profession. Atlee's first operation was for the removal of a fibrous tumour from the peritoneal surface of the uterus. His usual procedure was the removal of the growth only, either per vaginam or by abdominal section. Occasionally he did a hysterectomy. One of his most important papers, "The surgical treatment of certain fibrous tumours of the uterus heretofore considered beyond the resources of art," was published sixty-seven years ago, *i.e.*, 1853.

The first deliberate hysteromyomectomy was performed in America by John Bellinger seventy-four years ago. The growth was elevated, ligaments divided and numerous arteries were tied, animal ligatures being used. The body was cut across three-fourths of an inch above the ostium and the growth removed. The wound was closed with sutures, peritonitis developed and death occurred on the fifth day. The autopsy revealed signs of diffuse peritonitis, but there had been no hæmorrhage. The first successful hysteromyomectomy was performed by Dr. Burnham in Lowell, Mass., in June, 1853, sixty-seven years ago. The abdominal section was

performed in the expectation of removing an ovarian cyst, but the tumour proved to be a fibroid. As the ovaries were found to be diseased, they were also removed. Strong double ligatures were passed through the neck of the uterus and the cervix was dropped into the pelvis, the ligatures being brought out from the lower angle of the wound which was the procedure followed at that time. This was the first recovery after hysterectomy for fibroids. Dr. Burnham performed altogether fifteen hysterectomies with three recoveries, his second operation being done in 1854 and the third in 1857.

Dr. G. Kimball, of Lowell, was the first American surgeon to perform this operation, having previously made a correct diagnosis. This operation was performed on September 1st, 1853, sixty-seven years ago, the patient being in a serious condition from long continued uterine hæmorrhages. The cervix was transfixed, each half ligated and the body amputated in the supravaginal portion, the cervix dropped and the ligature brought out at the lower angle of the wound. The woman was well eight months later, but the ligatures were still attached. Kimball performed eleven hysterectomies with six recoveries.

Dr. H. O. Marcey was the first to evolve an improved method of treating the cervix, sewing it across with the cobbler stitch.

Dr. T. A. Emmet, thirty-six years ago, *i.e.*, 1884, was the first to utilize the peritoneum anterior to the uterus to cover the cervical stump.

Dr. M. A. D. Jones, in February, 1888, thirty-two years ago, was the first American surgeon to perform a pan-hysterectomy. This operation was done independently of Baudenhauer whose work was not known at that time in America. One of the most important steps in the advance of this field of surgery was devised by Dr. L. A. Stimson, of New York, who ligated the ovarian and the uterine arteries in their course as a routine measure, preliminary to the hysterectomy. This improvement in technic did away with the mass ligatures and very greatly reduced the

risks of sepsis and hæmorrhage. During the period from 1844 down to 1890 admirable work was done in France and Germany by such men as Velpau, Massat, Martin, Zweifel, Sanger and Olshausen. In England, Keith, Thorton, Vantock and Hayward Smith did pioneer work along these same lines. In America this field has been exploited by Gardner of Montreal, Kelley of Baltimore, Emmet of New York, Wyeth, Chipman, John E. Price, John B. Deaver, the Mayos, and thousands of other skilful surgeons on this continent of equal repute but less renown than the ones above mentioned.

*Pathology.* Various definitions have been brought forward in the effort to clarify the atmosphere in connection with this important subject. Zeigler's is as follows: "A tumour is a new formation of tissue possessing an atypical structure, not exercising any function of service to the body and presenting no typical limit of growth." C. P. White's definition is clearer, *i.e.*: "A tumour proper is a mass of cells, tissues, or organs resembling those normally present but arranged atypically. It grows at the expense of the organism without at the same time subserving any useful function." It would, therefore, appear that these neoplasms are composed of cells, tissues, or organs resembling those normally present in the body, and we, therefore, must conclude that they have a like origin. It, therefore follows that classification is possible according to the type of cellular tissue present.

1. We must bear in mind that some of the tumours are composed of cells of one particular type.

2. Others show a tendency toward an arrangement of those cells in definite order with intervening stroma.

3. A further group shows cells derived from more than one type of tissue, *i.e.*, "the mixed tumours."

4. Another group which shows a greater variation in the type of cells with a tendency not only to the development of irregular cell collections, but of such fully formed organs as brain, teeth, masses of bone, skin, glands, etc. We therefore have to deal with the teratoma, the blastoma, and the important subdivision of the latter fibroma; these latter being the most common form found in the region under discussion.

*Teratoma.* All monstrosities are teratomata. We may define the teratoma as an autonomous

growth, the product of the continued development within one individual of another individual of the same species. We must emphasize the "continual development" in order that we may exclude the normal foetus which possesses only a temporary development and then through its placenta penetrates into the maternal tissues.

*Blastomas.* This group includes all those that are not teratogenous. These tumours are an independent localized growth of tissue cells of one order. The typical blastoma is composed of cells which in their characteristics approximate to those of some adult tissue that is circumscribed and slow growing. The slowness of growth permitting reaction on the part of surrounding tissue so that in general they are encapsulated and sharply defined. Growth may for a time be arrested and then proceed. And unless it is in a position to press upon some vital part, or attain so great a size as to disturb the proper functions of the organs in its neighbourhood, the growth is harmless as long as it retains the characteristics indicated. The shape of the mass varies according to position embodied within a tissue and subjected to like pressure on all sides it tends to be globular. Situated on or near a surface so that the pressure on one aspect is less than on another it may spread laterally or become lobate or nodular. Such growths are spoken of as benign. They may grow slowly through the course of years, may never attain any great size and at most may become an indirect cause of death through mechanical disturbance of other functions. For our purpose the most important form of the blastomas are the fibromas. As the name implies the fibroma is a tumour composed of fibrous connective tissue and, therefore, may be met with in all regions of the body. Perhaps the female pelvis is that portion of the body that is most frequently attacked, the organs in which we most frequently find them being the uterus, and secondarily the ovary. Wherever they are found, the fibroma has for its essential constituent connective tissue elements. As such it is composed of connective tissue cells, bands of connective tissue fibrils, blood vessels and to a greater or lesser extent elastic fibre. Lymph spaces and channels are also present in a greater or lesser degree. Typically such growths form a well defined nodule which as it enlarges causes an atrophy, absorption and replacement of the tissues immediately surrounding it. Growth is as a rule slow and expansive. Fibromata proper do not

form metastases and it may be laid down that they do not recur.

*Etiology.* The two great groups of benign tumours of the pelvis are the fibroids and the degenerations of the ovary. Nearly all the authorities will agree that we know nothing of the essential cause of uterine fibroids. There are, however, certain factors that are supposed to influence their origin.

1. Heredity has been much referred to as a predisposing cause. While there are records of families where two or more members have been known to have uterine fibroids the influence of heredity must not be over estimated. Engstrom in 530 cases of uterine fibroids found a similar lesion in the mother or sister but thirteen times.

2. Age. The usual time of occurrence is during the time of sexual maturity. Fibroids are rarely found before the age of puberty and Findley is of the opinion that many if not all of these are of congenital origin. They are most frequent between the age of thirty and forty years and rarely arise after the menopause. In Miller's series of 299 cases, 120 were observed after the age of forty-five. Roger Williams in a report of 276 cases reports twenty-six under twenty years. One of the German authors reports a case in a child of ten and one of the French in an infant of three years of age. At the other extreme of life a submucous myoma is reported at ninety-two and a calcified myoma at eighty-six. It would appear from the study of statistics from a large series of authors that this type of new growth is prone to arise at a time when the sexual functions are waning.

3. Civil State. It is generally held that fibroids of the uterus are prone to occur in married women who have not borne children and in the unmarried. The number of children born to myomatous women is below the average while abortions are relatively common among them. The average number of children born of myomatous women is estimated to 2.5 as to the usual number of 4.5. Thirty per cent. of myomatous women are sterile as opposed to 10. per cent. of sterility in general.

4. Race. The negress is recorded as most susceptible to uterine fibroids. Kelley and Williams of Johns Hopkins where there is abundant opportunity for reliable observations deny this statement. In 367 cases reported by Williams fibroids were 2 per cent. more frequent in the coloured race and Kelley's statistics bear out these findings.

*Frequency.* It has been stated that 20 per cent. of the women who reach thirty-five years of age have fibroids while other authors affirm that 40 per cent. of the women who reach fifty years of age have fibroids of varying size and number. Of all non-malignant tumours uterine myomas are by far the most common. It has been estimated that 10 per cent. of all tumours in women are uterine fibroids.

*Ovaries.* The term ovarian tumour is applied to a series of degenerative conditions and new formations of the ovary, the most prominent clinical property of which is the enlargement of the organ. Physiological swelling occurs at regular periods but this as a rule is transitory and does not exceed an enlargement greater than that of half the size of an egg. Pathological enlargements from the standpoint of diagnosis should include those enlargements of the ovary exceeding that of the size of an egg.

These include: (a) Non-proliferating cysts. (b) Neoplasma. 1. Epithelial neoplasms (a) Cystoma simplex, (b) Cyst adenoma. 2. Oviogenous neoplasms, (a) Dermoids, (b) Teratoma.

II. Stromatogenous tumours. 1. Fibromata.

The relative frequency of the different kinds of ovarian tumours varies greatly.

Taking 556 cases reported by Kelly they were grouped as follows:

#### *Cystic Tumours*

Cyst-adenomata.....	247
Papillary tumours.....	54
Cyst-adenomata with malignant de- generation .....	21
Dermoid cyst.....	87
Multiple lutein cyst.....	1

#### *Solid Tumours*

Carcinoma of the ovary.....	90
Sarcoma.....	19
Fibroma.....	24
Papilloma.....	13

The above diagnosis was made from the microscopical examination of the growths.

Another group of 555 cases present the following

Cyst adenomata.....	243
Cyst adenomata with malignant de- generation.....	5
Papillo adenoma.....	86
Carcinoma.....	81
Fibroma.....	83
Sarcoma.....	15
Dermoid cysts.....	90
Tumours from mullerian duct.....	2

The above is made from microscopical section. As far as I have been able to discover very little is said by the various writers as to the ætiology of these most interesting conditions. It would appear, however, that cystic degeneration of the ovary is influenced by two widely divergent factors and that they appear in the following order:

1. This type of degeneration is found in a very large proportion of those women coming to the operating table who belong to the class known as the "higher educated". Whether the fact that considerable numbers of women during the menstrual epoch are being more and more compelled to devote their energy toward the development of their mental faculties, spending the hours in the class room, laboratories and passing tests and examinations, results in a marked interference of the blood supply to these important organs is perhaps a moot question, but it would appear that the experience of a very large number of operators bears out the fact that cystic degeneration in the higher educated is a very common experience.

2. Cystic degeneration appears to be a direct result of infection. Into the question of infection it is not necessary to enter here as that is one which we have all had a greater or lesser experience and the literature is filled with references to this important factor.

*Diagnosis.* Ovarian tumours. Ovarian tumours are connected with the uterus by a pedicle. This pedicle contains the same elements that connect the normal ovary with the uterus, *i.e.*, ovarian ligament and broad ligament. The ovarian ligament retains its original shape more than any other part of the pedicle. The broad ligament with the vessels, nerves, and connective tissue contains between its two layers, what represents the greater part of the true pedicle. The length of the pedicle varies greatly. Sometimes it is so short that the finger can barely be inserted between the tumour and the uterus, or it may be so long that the tumour can be pushed under the arch of the ribs. If the ovarian tumour grows toward the mesovarium and broad ligament it crowds the two layers of the lateral part and pushes in between them and thus becomes partially covered with the peritoneum of the broad ligament and becomes an intraligamentary tumour. Intraligamentary development is seen most distinctly in parovarian tumours which usually occupy the lateral part of the broad ligament.

For diagnostic purposes it is well to divide ovarian tumours into three groups.

1. Small ovarian tumours which still occupy the true pelvis.

2. Medium size tumours that have emerged from the pelvis but have not much exceeded a man's head in size.

3. Large tumours extending to the costal arch and to the liver, spleen, and kidneys.

In the case of small tumours that occupy the true pelvis the diagnosis is sometimes extremely difficult, for the uterus and tumour are usually so close together that the finger cannot be inserted between them. In retro uterine tumours a core can sometimes be felt running to the anterior surface of the tumour. These cases are, however, very exceptional and we should endeavour to try to separate the tumour from the uterus. Either the tumour can be completely separated from the uterus as in the case of pedunculated tumours, or if the tumour develops between the layers of broad ligaments it should be possible to make out a distinct constriction between the tumour and the uterus. The nearer the tumour lies to the uterus the more difficult it will be to make out this constriction. The shape of an ovarian tumour is usually globular or oval, the surface usually smooth. Lobulations and protrusions are found in solid tumours and occasionally in dermoids. The cystic consistency of small ovarian tumours is usually not recognized. Small ovarian tumours are most frequently found posteriorly along the side of the uterine body or they descend into Douglas's space. In the differential diagnosis we must distinguish between acute inflammatory conditions, chronic oophoritis, myomata of the uterus and the difficulty of differentiating between ovarian and myomata must be constantly borne in mind, very rapid development being in the main more in the ovarian cyst while a smaller development points to myoma.

*Medium Size Tumours.* The demonstration usually presents little difficulty. They can usually be demonstrated by means of percussion and palpation and there is less danger of being deceived by an accumulation of fat or meteorism than in the case of very large neoplasms. In these tumours the chief points in diagnosis is a demonstration of the connection with the uterus, that is to say the feeling of the pedicle. The distinctness with which the pedicle can be demonstrated will depend on its position and firmness of the component tissue. The differential diag-

nosis of these medium size ovarian tumours employs a larger field than that of the smaller neoplasms because tumours of individual abdominal organs and of the abdominal walls must also be considered.

We must differentiate between encapsulated ascites and peritoneal exudate. Omental tumours may occasionally be confounded with ovarian tumours if they extend to the pelvis. It hardly seems necessary to remind ourselves of the fact that a distended bladder may easily be mistaken for an ovarian tumour because the position, shape, contour and consistency all combine to produce a resemblance. The writer saw a surgeon of no mean repute incise a distended bladder having mistaken it for an ovarian growth. Again the differential diagnosis between ovarian tumour and pregnancy must always be borne in mind. Extra uterine pregnancy is more likely to lead to confusion with ovarian tumour than with intra uterine because the uterus can be distinctly isolated from the cystic tumour.

Large tumours. The large ovarian tumours represent neoplasms that distend the entire abdomen. They lie above the pelvic inlet, extend up to or underneath the arch of the ribs on either side to the region of the kidneys and are in contact with the liver, spleen, and stomach. Here again an accurate diagnosis depends on the demonstration of the pedunculated connection with one horn of the uterus, but owing to the great tension of the abdominal walls and the close apposition of the tumour to the uterus, it is usually impossible to carry the external hand down to differentiate the tumour and feel the pedicle. The writer recalls a case in his own experience of a patient with an ovarian neoplasm with fluid contents which extended up to the liver, was adherent to the costal margin and contained four gallons of fluid. The distension of the abdominal wall was so great that plication of the rectæ was necessary. Here owing to the enormous size of the growth and the abundance of adhesions it was impossible to demonstrate any of the classical pathological entities. The patient, however, was fortunate in making a successful recovery. In the differential diagnosis of these enormous tumours, we must bear in mind the pseudo tumours, a condition which is sometimes met with in hysterical subjects. In these cases no more satisfactory diagnostic resource is at hand than a general anæsthetic.

Free ascites often simulates large ovarian

cysts. A single manipulation of the abdomen may suffice to make the diagnosis, or it may be so difficult that all the diagnostic means at our demand are insufficient to clear up the case.

The other conditions which must be differentiated are pancreatic cysts, retro peritoneal and mesentric tumours, splenic tumours when they grow into the pelvic inlet and after they are the seat of cystic degeneration.

Tumours of the liver are occasionally mistaken for ovarian tumours if they extend to the pelvic inlet.

*The Diagnosis of Uterine Myoma.* In size uterine fibroids vary from almost microscopical to that reported by Hunter weighing 140 pounds and another reported by Sevarann weighing 195 pounds, Webster reports a case weighing eighty-seven pounds. This patient recovered from an operation performed almost wholly under local anæsthesia. This latter case is perhaps one of the largest uterine fibroids to be removed successfully.

Form. They are frequently somewhat smooth or rounded.

Consistency. Fibroids vary in consistency, some soft and fluctuating and others of wood-like hardness. The hard forms consist largely of fibrous tissue and low blood supply. Soft have a large amount of muscular tissue and are extremely vascular.

Rate of Growth. Soft fibroids grow more rapidly than the hard. During pregnancy fibroids grow very rapidly. After the menopause they decrease in size but frequently the period of the menopause is increased. It has been estimated that fibroids are seldom appreciable in less than a year and that in five years they may attain the size of a man's fist and in thirteen years to the size of a man's head. However, it is not possible to estimate the age of a tumour by its size, this being demonstrated by the many fibroids that are known to be of many years' duration, twenty or forty, namely the latent fibroid. It is exceptional for fibroids to exist singly. As many as 400 distinct and separate tumours have been found in a uterus.

Position. The position of fibroids in relation to the uterine wall is of the greatest clinical importance. All fibroids are originally intramural and they increase in size. They tend to grow in the direction of least resistance. The more pedunculated the tumour, the smaller the growth, the blood supply being limited. The writer has seen a fibroid of the uterus in which

the blood supply has been entirely cut off, as a result of the torsion of the pedicle and a secondary blood supply which was enlarging the growth coming from omental adhesions. The three great forms of myoma with which we are familiar are the submucous, interstitial, subserous, and there is a fourth, latent fibroids, Bland Sutton being responsible for its nomenclature. On careful dissection uteræ are frequently seen to contain numerous small bodies like knots of wood. Their whiteness is in marked contrast to the musculator. In histological structure they are identical to large fibroids. The old literature contains many references to recurrent fibroids. In cases of recurrence it is unrecognized malignant growth or the development of fibroids which had been overlooked. According to the latest pathology there is no such thing as recurrent fibroids.

*Hæmorrhage.* Profuse menstrual hæmorrhage is the commonest as well as the most striking symptom occurring in 50 per cent. of the cases. At first it is apt to be confined to an excessive flow at the period, which lasts five to six days. Later as the tumour enlarges the flow is of longer duration and becomes more excessive in quantity. A little later the flow which has been regular although excessive becomes more frequent, appearing after three or over two weeks and leaves the patient prostrated from excessive loss of blood. A profound secondary anæmia results. The patient's skin is peculiarly transparent with a waxy yellow hue. She suffers from dyspnoea, epistaxis, and palpitation with a sense of utter weakness. Distinct hæmic heart murmur marks the distinct changes in the condition of the blood. The hæmoglobin may drop as low as 20 per cent. to 30 per cent. The red cells as low as a million and a half or two million. The leucocytes remaining about normal. With the profound changes in the blood a variable condition of blood pressure is found and in the majority of cases the blood pressure is markedly lower while in those women who have established a relatively immunity to hæmorrhage it remains comparatively normal. The mechanical symptoms produced by the small tumours are due to pressure on various pelvic organs while the larger tumours often become inconvenient from their size and weight alone and in addition derange digestion, deform the thorax, cause difficulty in respiration and interferes with circulation. The three types of myomata referred to above should be borne in mind as each

is susceptible to modifications in the treatment.

Pain is a valuable symptom and is most marked when the uterus contains numerous myoma distributed throughout its walls. The pain is then usually menstrual in type, of a distressing, grinding bearing down character often likened to severe protracted labour pains. Pressure symptoms do not often occur until the tumours are large enough to choke the pelvis, when frequent urination and difficult defecation are common. When, however, a tumour becomes incarcerated under the promontory of the sacrum these pressure symptoms often become extremely urgent. We must, however, be on our guard against drawing hasty conclusions from the size and position of the tumour, but it is remarkable how well the rectum is able to retain the patulous channel under these circumstances. The bladder preserves its function by displacement, expanding upward into the lower abdomen. One of the most serious dangers which arises from the presence of large myoma particularly if developed under the pelvic peritoneum is the production of a hydroureter by pressure at the brim and thereby inducing a hydronephrosis.

*Differential Diagnosis.* Fibroids of the uterus appear most commonly during the period of sexual maturity, when pregnancy, inflammatory lesions and displacements are likely to arise and hence the differential diagnosis is of the greatest importance.

#### *Interstitial Fibroid*

1. Irregular enlargement of the uterus unless tumours are small.
2. Variable consistency.
3. Not tender to pressure.
4. Uterus freely moveable.
5. No history of infection.
6. Symptoms of uterine glandular activity not common.

#### *Chronic Metritis*

1. Uniform enlargement.
2. Uniform firm consistency.
3. Commonly tender on pressure.
4. Uterus usually restricted in its movements.
5. History of infection.
6. Symptoms of uterine glandular activity present.

Of greatest importance in the differential diagnosis is that of ectopic pregnancy and fibroid. This, of course, refers to the early stages of

pregnancy. The most important points to be borne in mind in early pregnancy is:

1. The uniform rapid growth.
2. The intermittent uterine contractions.
3. The characteristic doughy consistency.

We must not lose sight of the fact that certain forms of fibroids are accompanied by nausea and vomiting, enlargement of the breasts and softened and discoloured vaginal cervix. One fact we must never lose sight of and that is, "That no other tumour than a pregnant uterus displays intermittent contractions."

The subserous fibroid must be distinguished from the hæmatoma and the hæmatocele.

1. In the subserous fibroid no history of recent pregnancy.
2. Slow continued development.
3. Consistency rarely soft.
4. Sharply circumscribed tumour.
5. Exploratory puncture negative.

#### *Hæmatoma or Hæmatocele.*

1. Frequently history of previous pregnancy.
2. Sudden development.
3. Consistency at first is fluctuating, later doughy.
4. Ill defined tumour.
5. Exploratory puncture blood obtained.

The differential diagnosis must also consider displacement, carcinoma, sarcoma, tubal and ovarian enlargements and pelvic exudates, and last but not least ectopic pregnancy.

The most common concomitant condition complicating fibroids.

1. Hæmorrhage.
2. Complicated pregnancy.
3. Septic infection.
4. Torsion of the pedicle.
5. Impaction.
6. Retention of urine.

Bland Sutton lays the rule down that a woman between the ages of thirty-five and forty who seeks relief because she suffers from retention of urine for two or three days before menstrual flow is almost certain to have a fibroid.

7. Intestinal obstruction.
8. Nutritive changes in the fibroid itself.
9. Cardiopathy of uterine fibroid.

The reasons for cardiopathy are not amongst the easiest to demonstrate, but the following may be considered.

- (a) Excessive size of tumour, embarrassing the excursions of the ribs and diaphragm.

(b) Pressure on the ureters primarily affecting the kidneys with secondary cardiac involvement.

(c) Menorrhagia producing anæmia with secondary nutritive changes in the heart.

(d) Disturbances of the cardio vascular system from the influence of the tumour on the sympathetic and cerebro-spinal systems.

(e) Rapid failure in compensation where fibroids complicate pre-existing heart lesions.

10. Malignant degeneration in uterine fibroid occurs in from 2 per cent. to 4 per cent. and are usually sarcomatous.

*Treatment.* It is perhaps within the realm of conservatism to say that the treatment in all cases of neoplasms of the pelvis is surgical. That certainly is the opinion of the writer. Room for considerable difference of opinion arises as to the best method of dealing with the myomata, i.e., on one hand there are the advocates of conservative myomectomy, on the other hand there are those who advocate supravaginal hysterectomy. Submucous fibroids come under a different heading and are to be attacked always per vaginam excepting in such cases where they fill the entire uterine cavity. It would appear that the abdominal route is infinitely more preferable than the vaginal despite the fact that the advocates of vaginal hysterectomy maintain that the operation is one that is performed with less shock than the abdominal.

In the hands of careful and rapid operators an abdominal hysterectomy presents the following advantages over the vaginal:

1. Greater rapidity.
2. Operation performed in *situ*.
3. More scientific treatment of the stump.
4. Absolute control of hæmorrhage.
5. Less liability of injury to the bladder.

The only objection to abdominal hysterectomy is that of the resulting abdominal scar. The charge of hardihood may perhaps be laid to the door of one who ventures to disagree with an authority of such recognized standing as Howard Kelley of Baltimore who was the first to develop the technic of conservative myomectomy in attacking uterine fibroids. While this may be the operation of choice in certain groups of cases yet the fact remains that when two or more intramural fibroids are removed by this method the expansile and contractile power of the uterus is markedly interfered with and the possibility of rupture during succeeding gestations must be borne in mind.

Further, numerous fibroids may be present which may escape the notice of the operator demanding a subsequent operation and hysterectomy. This has been the unfortunate experience of the writer in a few cases and is borne out by the experience of a number of his confrères. It would seem as a result of the study of statistics and observation of others and one's own experience that when a uterus holds more than two or three intramural fibroids that supravaginal hysterectomy is the operation of choice.

During the past few years the exponents of radium have vaunted its influence as a curative factor in dealing with this problem. In the last year or two, however, the pathologists are informing us that malignant degeneration is the result in a certain number of cases following radium emanations. Whether this is so or not I have no personal knowledge, but it would seem

that we are unwise to deviate from a well beaten path which is accompanied with almost vanishing mortality to take up with an untried field where there seems to be a large element of doubt and more or less possible danger.

In closing I may be permitted to quote from one of the greatest of the American surgeons who says:

"That as a curative palliative and diagnostic agent the aseptic scalpel in the hand of the careful, conscientious and skilful surgeon stands without a peer."

Roosevelt Clinic, Seattle.

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**Discover New Anæsthetic.**—Discovery of a new local anæsthetic to be used as a substitute for cocaine, in anæsthesia, was recently announced by the University of Illinois, in whose laboratories the work was accomplished.

A further announcement to the medical profession is now made by The Abbott Laboratories, of Chicago, that this new anæsthetic will be supplied by them and will be known as Butyn.

This new product is structurally related to both cocaine and procaine, but clinical tests have shown it to be superior to cocaine in practically every respect. For example, it is more effective and less toxic; its solutions may be boiled without decomposition, it causes no dilation of the pupil of the eye, nor drying up of its secretions. It is less irritant than cocaine and much more rapid in its action. The anæsthesia produced by

Butyn is of longer duration and its solutions are slightly antiseptic.

No Harrison narcotic blank is required in securing Butyn, as it is without the habit-forming disadvantages of cocaine.

Clinical work done by Dr. Geo. F. Suker and Dr. H. S. Gradle, of Chicago, prove this new anæsthetic useful as a substitute for cocaine. A two per cent. aqueous solution instilled into the eye will produce anesthesia so rapidly that operative work can commence at once, whereas from four to five minutes was formerly required where cocaine was used.

It is expected that this new discovery will soon be available for the profession. Further information may be obtained by writing to Research Department of The Abbott Laboratories, who have collaborated with the University of Illinois in developing this new anæsthetic.

## Editorial

### A NATIONAL HOSPITAL DAY

A CAMPAIGN has been instituted for the observance, in the United States and Canada, of May 12th, the birthday of Florence Nightingale, as a National Hospital Day. The idea is the same as that which has been so successfully carried through in "Arbor Day" and "Clean-up Day", namely, the education of the community by organized publicity and concentrated activity in the work and the needs of hospitals and their training-schools. "That the community shall know its hospital" is the slogan of the movement. The programme will include throwing open of such parts of a hospital as are adapted to public inspection during certain hours of the day, and the distribution of literature telling of its work and its needs. A special feature is to be made of the diffusion of information in regard to the training-schools for nurses. In this connection, the 12th of May is recommended as an eminently suitable date for an annual Graduation Day for nurses. Nurses' Homes are to be thrown open to all, and so far as may be practicable "open house" is to be held in all hospitals for school girls and others likely seriously to be interested in devoting themselves to the work of nursing the sick.

The suggestion of such a National Day, as has been outlined above seems to us very timely, and one hopes it may be carried through with success. All who are interested in hospital work realize that at the present the financial problem is a serious one and that a

vigorous publicity campaign is essential to save the situation. The time is past when support for the care of the sick poor can be obtained through funds raised from private philanthropy. Not only are modern hospital methods expensive beyond anything formerly conceived of, involving physiological laboratories, x-ray equipment and other costly aids to diagnosis, and therapeutics, but the high cost of living and the superadded income tax absorb much of the money formerly available for charitable purposes. On the other hand, the increase of poverty and unemployment and the influx of a new and inexperienced immigrant population as yet unestablished in homes create a greatly increased number of indigent sick demanding care. The efficient support of hospitals has, therefore, become a problem of civic and national importance that can only be solved by obtaining the interest of the public and by bringing the responsibility home to those who have the control of taxation in their hands. Education is needed so that all may understand and realize the importance of the splendid work that is being done in our hospitals. The care of the sick, and the prevention of the spread of disease is as vital to a nation as the education of its children, and calls for similar special taxation.

The financial support of the hospital, however, is not the only aspect that causes serious anxiety at the present time. In addition to an expensive equipment, the modern hospital requires a personnel of nurses, trained and under

training, whose services are devoted to that skilled care of the sick that is more important than any medication. The commercialism of the age, and the attractions held out by shorter hours, and higher pay, are depleting the ranks of applicants to our hospital training-schools so that an acute deficiency in the ranks of trained nurses seems likely to arise. To correct this tendency a committee has been formed in each hospital centre to secure the adoption of the birthday

of the Great Founder of modern nursing as a National Hospital Day on which efforts will be made to bring the value of a modern hospital before every member of the community, and also to impress young women standing on life's threshold with idealism still dominant, and aspiring to a vocation as well as seeking a means of livelihood with the view that nursing is a profession and not a business, and that in its honour sacrifices must be rendered as well as privileges won.

### GROUP DIAGNOSIS AND GROUP THERAPY

**T**HE idea of a closer working alliance between groups of medical practitioners has received some attention in the pages of medical journals of comparatively recent date and has been discussed by physicians, surgeons and specialists. The idea appeals to many, while others seem to see in it a possible influence tending toward commercialism and a greater misunderstanding among medical men than obtains to-day.

There can be no doubt that the suggestion is the result of existing conditions. The advances in medicine have been so great that it is readily admitted by one and all that no one mind can master it in all its details. The existence of the specialties and their service to medicine and to the lay public are evidence of their need. A group of men concentrating their energies on different fields of medical knowledge and research can do better for the patient, in many cases, than can one mind be it ever so versatile, and so well trained medical men are indeed, in a sense, set apart for a special work, but no occupation or profession can be isolated from

general community life. If medical men choose to group themselves together in a united effort, they are only doing what other men have found it necessary to do in other occupations.

The idea of group practice is not as new as perhaps it may seem. Since the days of hospital organization medical men have worked in groups, and to the advantage of the public and themselves. The possibilities of group practice can be seen in Rochester and the profession will watch with interest the group now being organized in Cleveland.

If group practice is to be a permanent arrangement for the carrying on of the practice of medicine, it must be conducted on approved principles. The man outside must be given help and management. The question of Group Practice and Group Therapy is not without interest to medical practitioners in the smaller towns and in rural districts. It might make greater laboratory facilities possible and prove economical in time and energy.

It also has a bearing on the subject of State Medicine. The best way to

avoid state medicine is for the profession, by organization, to anticipate it, and group practice is worthy of considera-

tion in this connection. State medicine might not prove more satisfactory than State railroading.

### PITUITARY EXTRACT AND SCOPOLAMINE-MORPHINE IN OBSTETRICS

**I**N a paper on this subject by Ross Mitchell appearing in this issue a very complete history of the initial use and development of these methods in obstetrical practice is given. While nothing has been developed in the detail of this paper, a very laudable and conservative application of these methods has been suggested. Pituitary extract and its application was dealt with editorially in this Journal a short time ago, and we feel that there is no need for further remark upon the use of this drug.

Morphine-scopolamine used ethically and with no desire to produce theatrical results, is still a very valuable aid to the obstetrical practitioner. It is of considerable use in a few selected cases, particularly the nervous and aged primipara. In these cases where fear to a certain extent is the cause of a large amount of the general exhaustion, or where a particularly rigid cervix means

a long trial to the patient's reserve, morphine-scopolamine seems to have a decided place. Our experience with the less toxic effects of heroin would incline us to the use of this agent in the replacement of morphine.

The two agents, pituitrin and the combination of morphine and scopolamine in their use, must necessarily be at the command only of the attendant who is thoroughly conversant with the condition of his patient and also with the peculiarities of the drugs.

One cannot too rigidly condemn the persistent tendency in certain countries and localities to make use of either agent as an incentive to the patient to choose certain centres as her temporary place of abode. To promise a patient the application, particularly of the latter reagent in her labour, has led without question to its abuse, and in large extent its discredit.

### EARLY DIAGNOSIS OF DIPHTHERIA

**U**NDIAGNOSED and neglected cases of diphtheria terminating fatally are still too frequently met with in these days of perfected cultural diagnostic methods and specific therapy. That diphtheria is still one of the most fatal of contagious diseases is due essentially to the failure of early diagnosis and early treatment. Cultures should be taken in every case where there is the least

element of doubt. Primary nasal diphtheria is the form most frequently overlooked, and constitutes a real menace to a community. Owing to the mildness of the attack and the absence of constitutional disturbances, a child with a so-called "cold" may walk about for weeks and attend school. Such a child is a particularly dangerous diphtheria carrier. It is noteworthy that some

patients with pharyngeal diphtheria feel so astonishingly well that a throat examination is sometimes omitted.

The hospital is the only safe place for the most fatal type of diphtheria, the laryngeal type. The margin between life and death is indeed often a narrow one. Such a case may require instant intubation which can only be done by a man specially trained, who can be obtained at a moment's notice. All persistent nasal discharges, particularly when blood-tinged, and all throat exudates and membranes should have cultures taken. With this simple rule faithfully observed, diphtheria will be rarely over-

looked, and the unnecessarily high present day mortality will be materially reduced. To render this possible it is essential that the departments of health in all our cities should establish easily accessible sub-stations where culture media and antitoxin may be obtained at any time without cost. This procedure is adopted in many large American cities and in some Canadian cities. From these stations cultures taken during the day are collected in the evening and reported upon the following morning. This makes the diagnosis of diphtheria so simple that given the facilities, neglect to make use of them would be unpardonable.

#### ON DIGITALIS THERAPY

**I**T has long been taught that the tincture and infusion of digitalis differ from each other, both in the quantities and kinds of active principles which they contain. The tincture has long been regarded as representing all the active principles of the leaf, but the infusion on the other hand, varies greatly in therapeutic activity even when prepared from the same batch of leaf. Digitalis leaves contain three glucosides: digitalein digitalin, and digitoxin, and an inert saponin body, digitonin. In any infusion of the leaves the large bulk of the first two are dissolved, but Hatcher has recently shown that these two substances, when given by mouth, are absorbed very imperfectly from the digestive tract, and that in oral administration the action of any digitalis preparation depends in great measure on the amount of digitoxin or digitoxin-like substance, which it contains. Digitoxin, unfortunately, does not dissolve in an aqueous preparation as readily as the first two, but is absorbed

much more rapidly from the bowel. Carefully conducted experiments recently carried out by Dr. Hatcher and Dr. Weiss of Cornell University indicate that an infusion may be made by the following method, which will represent the total therapeutic strength of the drug, and which will preserve its strength for a year or more when sealed in sterile containers. The important conditions for the preparation of such an infusion are the fineness of the powdered leaf, the amount of water employed, and the length of time the drug is exposed to the temperature of boiling water. The leaf must be ground to a fine powder No. 60, and of this powder 10 gms. requires 1000 cc. of boiling water, and the heat to be maintained for one hour, with frequent stirring. The resulting infusion is then to be filtered and placed in sterile containers. Such an infusion has exactly one-tenth the strength of the official tincture. Excellent clinical results have been obtained from infusions

made in this way and kept for more than two years. When a coarser powder is employed with a smaller amount of water, or insufficient time is given to the prepara-

tion, extraction of the active principles is imperfect, and what is very important a large percentage of the deficit consists of the important digitoxin element.

## The Association

THE HALIFAX MEETING—JULY 5TH, 6TH, 7TH, 8TH, 1921.

**W**ORD comes from Halifax that excellent progress is being made in the preparations for the annual meeting of the Association July 5th to 8th. The address in surgery will be given by Sir Lenthal Cheate, K.C.B., F.R.C.S., of London, England, his subject being "Neoplasms of the Breast". The address in medicine will be given by Dr. D. L. Richardson of Providence, Rhode Island. The title of his address has not yet been received. Many prominent members of the profession in Canada and also from the United States have promised to contribute.

The following papers will be given in the surgical section: "Malignant Diseases of the Throat," W. S. Syme, Glasgow, Scotland. "Note upon Recent Cerebral Work," E. W. Archibald, Montreal. "Surgical Treatment of Deformities of Face and Palate" (with lantern slides), Fulton Risdon, Toronto. "Perforating Ulcer of the Stomach and Duodenum," George E. Armstrong, Montreal. "Ankylosis of the Elbow with Treatment by Arthroplasty," W. N. MacAusland, Boston. "Surgical Treatment of Goitre with special Reference to Cases of Hyperthyroidism and the Application of Basal Metabolic Rate," E. M. Eberts, Montreal. "Some Factors in the Aetiology and Diagnosis of Infections of the Renal Pelvis and Tubules," D. W. MacKenzie, Montreal. "Arthritis of Acute Infectious Origin," W. G. Turner, Montreal. "Some Cases of Unusual Interest to the Anæsthetist," W. B. Howell, Montreal; "Tonsil Operations," David H. Ballon, Montreal. The following will also contribute: J. S. McEachern, Calgary; A. Primrose, F. N. G. Starr, Toronto; Jasper Halpenny, Winnipeg; F. S. Patch, Montreal. A representative from the Mayo Clinic will also be present.

Amongst the contributors to the medical section are Drs. Rudolf and Graham, of Toronto; C. F. Martin, A. H. Gordon, F. G. Finley, Montreal. A number of papers have been promised,

but unfortunately the contributors have not yet sent in their titles.

Sections of Public Health; Obstetrics and Gynæcology have been organized and we are informed by the Halifax Committee that there will be a good programme in each.

An X-Ray Section has not been definitely decided upon but if it is not held an effort will be made to secure prominent radiologists to take part in both the medical and surgical sections.

There will be no special section in Eye, Ear, Nose and Throat. Papers contributed in these branches will be distributed throughout the medical or surgical sections.

We have the assurance of the Chairman of the Local Committee, Dr. S. L. Walker, that the arrangements which are being made for the entertainment of visitors, will leave nothing to be desired, and will come fully up to the reputation of the well-known Halifax hospitality. A Committee of Ladies has been formed, and ladies accompanying visiting doctors will be well looked after. The entertainments will include: reception and garden party at Government House; harbour excursion; a hodge-podge on Lawlor's Island; and an evening concert with illuminated boat parade at the Waegwoltic Club. In addition there will be many private functions.

Anyone desiring information or willing to contribute to the programme should write to the Chairman of the Programme Committee, Dr. A. I. Mader, 57 Morris St., or the Chairman of the General Committee, Dr. S. L. Walker, 14 Carleton St., or the Secretary of the Committee, Dr. W. L. Muir, 245 Robie St.

### HOTELS

*Halifax Hotel*.—American Plan only, \$5.00 to \$6.00; \$5.00 without bath and \$6.00 with bath.

*Queen Hotel*.—American Plan only, rooms \$4.50 to \$5.50. \$4.50 without running water, \$5.00 with running water, \$5.50 with bath.

*Carleton Hotel*.—American Plan only, \$4.00 to \$5.50. \$4.00 without bath. \$4.50 with running water, and \$5.50 with bath.

## Correspondence

211 College Street,  
Toronto, Ontario,  
March 18th, 1921.

To the Editor:

I AM writing to you to call attention to the editorial in the February issue of the Journal of the Canadian Medical Association in which the expression "Acute Abdomen" is commented upon and condoned.

Many years ago, a teacher of therapeutics in a medical college used to give his students the following definition of the class of remedies known as "alteratives": "The term 'alteratives' is the breast work behind which ignorance likes to skulk." Had his surgical colleague lived to hear this new abomination, possibly he would have defined the "Acute Abdomen" in the same words.

If the "Acute Abdomen", why not the "Acute Thorax", or the "Acute Head"? Possibly the originator of the first term was suffering from a condition suggested by the last.

Language must grow. In the course of this growth, new forms will appear and some superfluities will drop away, but the process is an exceedingly slow one. Language is of as long-lived a family as calamity. Words are in common every-day use which have come down through thousands of years from races which had no written language but which transmitted the word from mouth to mouth through various races to our own. It is true that there are languages which are called "dead" but while they may not be spoken as they were, their influence is indestructible.

On this continent, and particularly in the

adjoining republic, there are millions of people speaking the English language, whose parents and ancestors spoke not a word of English. Under such circumstances, it is inevitable that idioms from other languages should be more or less literally translated into English and that shades of meaning, unknown in Britain, should be given to English words in use on this side of the Atlantic. The marked illiteracy of the great majority of newspaper reporters is responsible for much of the loose and ungrammatical language appearing daily in the press. The fashion for gratifying the vanity of the masses, "the plain people," as distinguished from the classes, official or intellectual, by affecting an indifference to, or contempt for tradition, has led to all sorts of vagaries of speech and manners, so that to-day one can scarcely understand the jargon of certain pages of the newspapers such as the "Sports" and "Financial". The news columns are almost as bad.

Tradition is one of the most valuable assets of a nation and should be held in the highest respect so long as it does not clog the wheels of progress. There are some traditions which represent verities as fixed as is the position of the star in the firmament which Caesar chose for his simile of immutability. To these we should hold, and refuse to be alienated by the lure of any would-be popular writer, however attractive.

Whilst it is relatively true that "*qui non profecit defecit*", let us advance decently and with discernment, and not stop to pick up every piece of fool's gold that may catch the eye of everyone, but deceives only the lazy or the superficial.

Yours sincerely,

F. S. L. FORD.

## Obituary

JOHN GEORGE McCARTHY, M.D.

DR. JOHN GEORGE McCARTHY died in New York on March 13th, 1921, on his return from Bermuda where he had spent several weeks to escape the rigors of a northern winter.

Born at Sorel, the son of the late Thos. Mc-

Carthy, first member for Sorel after Confederation, he graduated at McGill in 1888 and in 1890 was appointed assistant demonstrator of anatomy, later becoming demonstrator and in 1903 assistant professor in this department until his resignation in 1909. In these posts he was

greatly appreciated by the students for his power of clear and graphic exposition, and for his genial and kindly bearing. His most important contribution to anatomical literature was a paper describing the Corrugated Core of the hippocampus major, a feature of gross brain anatomy which had till then escaped recognition.

Although retiring from active practice about a year before his death he retained an interest in the welfare of his former patients, as well as their love and regard, and many of them have good cause to remember his sympathy and generosity in tiding them over both physical and financial troubles.

Fond of outdoor life he was never happier than on an excursion on the river or on a fishing trip. His fund of humour and his genial character endeared him to a large circle of friends and particularly to the small group who accompanied him on his short excursions.

For the past two years Dr. McCarthy had had occasional attacks of angina. A period of freedom for nearly six months had raised hopes that the condition might be less serious than anticipated. A very severe seizure, however, attacked him on his way home and unhappily proved fatal.

Mrs. McCarthy, a daughter of the late Senator Murphy, with a son and daughter survive him.

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## Men and Books

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### A RHODE ISLAND PHYSICIAN PHILOSOPHER AND HIS DISCUSSION OF A VISIT MADE BY HIPPOCRATES

ELISHA BARTLETT, the Rhode Island physician philosopher of the early 19th century, in an editorial in the first number of the *Monthly Journal of Medical Literature and American Medical Students' Gazette*, published in October, 1831, remarked that there were plenty of practical journals of high character, but that he wished to see one devoted to "medical history, medical literature, accounts of medical institutions and hospitals, medical biography, including sketches of the character, lives, and writings of the chief masters of our art, and of all such as have in any way influenced its destinies and left the deep traces of their labours on its history . . . To the medical student and the young practitioner, to all those who aspire to any higher acquisitions than the knowledge that calomel purges and salivates, and that tartarized antimony occasions vomiting, who are not willing to rest supinely satisfied in a routine familiarity with doses and symptoms, a familiarity which practice and habit render in the end almost mechanical, we cannot but think these matters must be interesting.

The devotion of an occasional hour to such pursuits must have a tendency to enlarge and liberalize the mind. It will help to keep alive

and stimulate in the young medical scholar the sometimes flagging energies of study. By calling his attention and directing his desires to high standards of acquisition and excellence, it will urge him on towards their attainment. Delightful and fascinating, in many respects, as the study of his profession may be to him, there are many hours which must be occupied with mental and bodily drudgery. He must make what to others would be loathsomeness pleasure to himself. Amid the tear and wear, the toil and fatigue of such pursuits, he needs at times some intellectual recreation and stimulus, and where can he find one pleasanter or more appropriate than in surveying the career, and studying the characters of those who have trodden before him the same laborious path, and who have followed it on to its high and bright consummation? If our profession ever vindicates its legitimate claim to the appellation of liberal, it must be cultivated with some other than the single aim of obtaining patients for the sole purpose of getting for services rendered an equivalent in fees."

Bartlett's message of nearly one hundred years ago is presented to the readers of this column in the hope that it may inspire active co-operation and perhaps stimulate the inception of medical historical meetings throughout the country. How delightful and helpful it would

be to have medical societies devote one meeting a year to this aspect of medicine and how much might be reaped from a fuller knowledge of the ideals and tribulations of those great masters who transformed the practice of medicine from a religious art to the highly scientific study of to-day.

This delightful man in one of his last publications "A Discourse on the Times, Character, and Writings of Hippocrates" gives a fascinating description of what he imagined Hippocrates at the age of thirty. Hippocrates is paying his morning visit to Abdera, and Bartlett describes the visit as follows:

"At the head of the bed, watching steadfastly and earnestly the appearance of the patient, is seated his physician, the already celebrated son of Heraclides and Phenarete, Hippocrates of Cos. He has just entered the apartment, to make his morning visit. His sandals have been taken off, and his feet washed by a slave in the vestibule. He wears over his linen tunic a large flowing mantle of light fine wool, suited to the season, not unlike the later toga of the Romans, fastened at the neck with a cameo of Æsculapius, and falling in graceful folds nearly to his feet. His hair is long, and both this and his beard are kept and arranged with scrupulous neatness and care. He is thirty years old, in the very prime and beauty of early manhood. His features, through these misty shadows of many centuries, we cannot clearly distinguish, but we see that his face is dignified, thoughtful, and serene; and his whole aspect, manner, and expression are those of high, antique breeding, of refined culture, and of rather studied and elaborate elegance.

His examination of his patient was long, anxious, and careful. He saw at once that the gravity and danger of the disease had increased since his last visit. He inquired very minutely into the manner in which the night had been passed; and was told by the watchers that the patient had had no sleep, that he had talked constantly, had sung and laughed, and had been agitated and restless. He found the hypochondria tumefied, but without much hardness. The stools had been blackish and watery, and the urine turbid and dark coloured. He noticed the temperature and feel of the skin, and he studied for a long time and with great solicitude the general manner and appearance, the decubitus, the breathing, the motions, and especially

the physiognomy of the patient. The only circumstance in the examination that would have particularly attracted the attention of a modern witness of the scene, would have been his omission to feel the pulse. With this exception, no examination of the rational symptoms of disease could have been more thorough and methodical.

Having satisfied himself as to the state of his patient, he retired to an adjoining room, followed by some of the attendants, to give directions in regard to the few simple remedies that he intended to use. The patient had already been bled, and had had a purgative of black hellebore. Hippocrates directed, that instead of the strained decoction of barley, which had been the patient's drink, he should now have honey and water, the favorite hydromel; that the bed should be made softer; the windows of the room still farther darkened; and that a warm flaxseed poltice softened, with olive oil, should be applied to the abdomen.

With a sad but decided expression of his fears as to the issue of the case, and a few kindly and pious words to the weeping wife, about the dignity, the solace, and the duty, in all our trials, of submission to the will of God, he gathered his mantle gracefully about him, and his sandals refitted by the slave who waited in the vestibule, and proceeded on his daily round of visits among the houses of the city."

### JOHN BURROUGHS

JOHN BURROUGHS, the famous naturalist and author, died on March 29th.

Nearly sixty years ago he wrote "Waiting", a poem which has found a place in scores of anthologies the world around, and the familiar lines of which are the property of us all:

"Serene I fold my hands and wait,  
Nor care for wind, or tide, or sea;  
I rave no more 'gainst time or fate,  
For lo, my own shall come to me," etc., etc.

"I wrote this poem," said Mr. Burroughs to Joyce Kilmer, the editor of "Literature in the Making" in 1882, when I was reading medicine in the office of a country physician. It was a dingy afternoon and I was feeling pretty blue."

The poem first appeared in the *Knickerbocker Magazine*.

H. P. WRIGHT

## Abstracts from Current Literature

### SURGERY

#### The Mechanism of Shock and Exhaustion.

CRILE, GEO. W.: *J.A.M.A.*, Jan. 15th, 1921, Vol. 76, p. 149.

IN shock or exhaustion man loses power to transform potential into kinetic energy in the form of heat, motion and mental action, despite vital organs that are anatomically intact.

Organs and tissues which fail in function and may produce acute exhaustion are the respiratory and circulatory systems, the blood, muscles, supra-renals, the liver and the brain.

The fat embolism theory of shock causation is untenable in many cases of profound shock where fat embolism cannot occur, as emotional shock, so common in battle. In this connection the prescribed remedy, carbon dioxide treatment, has failed in the treatment of shock. The primary cause of acute exhaustion may uncommonly be found in the respiratory system.

Failure of the heart, pooling of blood in the large veins, are not primary causes of shock.

In traumatic shock there is impairment of the vaso-motor mechanism, or it is exhausted, but this does not appear to be the primary cause of shock. The blood changes in cell content, diminished alkalinity, its concentration, etc., are not primary but secondary to increased tissue cell metabolism. The voluntary muscle of the body is not the site of the changes that cause shock. The supra-renals are proven to be essential to the function and survival of the brain, and they increase the oxyhæmoglobin in the lungs and increase the alkalinity of the blood. The supra-renals also exert a vital influence on the hepatic cells, and in liver cell alteration the brain cells are unable to work normally and become exhausted. The liver is essential to brain life, its removal causes death in a few hours, with progressive degenerative changes in the cerebral cells.

The brain cells depend on the blood for oxygen, carbohydrate fuel and sugar, as they have no stores of these, and the liver is essential for sugar at least.

The brain tissue transforms energy about

ninety times as rapidly as an equal weight of voluntary muscle tissue, and the whole brain metabolism is five times greater than the metabolism of all the voluntary muscles. The more intense the brain activity the more the need for sleep. The whole man spends one-third of his time waiting for the brain to renew itself. The brain may be exhausted primarily while the blood pressure is normal or above normal—as in fever, excitement, physical strain, mental overwork, insomnia, anaesthesia, etc. On the other hand neither cerebral cells, cells of any organ, nor the man as a whole are exhausted immediately by unlimited trauma on areas cut off from connection with the brain by blocking the nerve supply.

Nitrous oxide limits exhaustion by lessening the oxidation of the brain cells and they are less driven by trauma.

The brain is the master tissue of the body, the most active energy transforming tissue of the body, and the exhaustion or shock of man is brain exhaustion. C. K. P. H.

#### Mesenteric Embolism in a Hæmophilic.

BLOCK, FRANK BENTON: and GOLDBERG, SAMUEL: *Ann. Surg.*, Feb., 1921, p. 229.

A PREOPERATIVE diagnosis was made and recovery followed operation in a woman of forty-five years who was a true hæmophilic—a rare condition in females. She gave a history of rectal hæmorrhages and subcutaneous hæmorrhages for years back. The onset was sudden, with severe crampy pains and almost continuous vomiting. A resection was done and there was wound oozing on the table for which horse serum was given. It continued, and twenty-four hours later a citrated transfusion was done which checked the bleeding. C. K. P. H.

#### Pseudo-polycythæmia—Extraordinary Blood Changes in a Patient with Renal Calculus.

HERMAN, LEON and LYON, B. B. VINCENT: *Ann. Surg.*, Feb., 1921, p. 223.

THE patient, aged forty-nine years, showed a most extraordinary blood count. He had been

aware of an abnormally high blood count prior to onset of symptoms in 1897, thought to be due to appendicitis, but which was due to renal calculi and ureteral adhesions to the lower end of the right kidney. Symptoms of definite renal colic occurred in 1900, with the passage of stones. He came for operation in March, 1919. His erythrocytes were 11,496,000, hæmoglobin 115 to 120 per cent., white blood cells 11,600, clotting time  $7\frac{1}{2}$  minutes.

Nephrectomy was done and three days later hæmoglobin was 108 per cent., red cells 5,504,000, and leucocytes 11,200. Thirteen days after operation white blood cells were 260,000, next day 242,000, with erythrocytes 4,480,000 and hæmoglobin 90 per cent. He was afebrile four days later with hæmoglobin 88 per cent., reds 4,360,000 and whites 22,800.

One year after operation blood count was normal. No explanation is offered for this polycythæmia prior to operation, nor for the most unusual flood of white cells after operation.

C. K. P. H.

**Blood Analysis and Biological Reactions in Surgical Conditions.** DEPAGE, A. and GOVAERTS, P.: (*Analyse du Sang et Reactions Biologiques dans les Affections chirurgicales*): *J. de Chir.*, Jan., 1921, Vol. 17, p. 5.

THE authors limited their study to results furnished by examination of blood in post-hæmorrhagic anæmia which they consider a problem of great practical importance. The critical blood pressure, according to their findings, is in the vicinity of 80 mm. of mercury, as death always follows if this low blood pressure be continued for several hours. The grave danger is not due to the lowering of the number of blood corpuscles but to the diminution in the mass of the blood.

Prognosis is based on three conditions (1) lowering of the blood pressure; (2) evaluation of the mass of the blood; (3) cause and method of the production of the hæmorrhage.

Hæmorrhages are classed as moderate or severe. After moderate hæmorrhage the blood count in the first six hours is 4,500,000 to 5,000,000. After severe hæmorrhage during the first three hours the count is less than 4,500,000, in from six to eight hours less than 4,000,000, in from eight to twelve hours less than 3,500,000. If 4,000,000 are observed during the first six hours following a severe hæmorrhage death usually follows within twenty-four hours.

Intravenous saline injections are indicated in all moderate hæmorrhages but are contraindicated in all severe ones. In severe cases blood transfusion is the treatment advised. Post-hæmorrhagic anæmias result in dilution of the blood by the tissues. In man this phenomenon is not complete until after three days. Anæmia is increased by infection, and may be masked by asphyxia, peritoneal reactions and acidosis.

In man the first blood picture of hæmorrhage is not diminution of the red cells but increase in the white cells. The sign aids in the diagnosis of internal hæmorrhage. In blood transfusion if the blood cells injected have been selected in a manner to avoid agglutination they persist in the circulation for at least ten days. R. B. M.

### Hydrocephalus in Chondrodystrophy.

DANDY, WALTER E.: *Bull. Johns Hopkins Hosp.*, Jan., 1921, p. 5.

DANDY'S work upon the ætiology and the treatment of hydrocephalus in the past few years has now gained wide recognition, as it deserved, for it has been fundamental. His simple expedient of injecting air into the cerebral ventricles, and subsequently taking x-ray plates, a procedure which when properly done gives an excellent picture of the size and shape of the ventricles, has put us a long step forward in diagnosis. The present article applies this principle in the elucidation of a condition concerning which hitherto we have not had definite knowledge. Chondrodystrophy, or achondroplasia, is a well-known form of dwarfism characterized by a combination of short arms and legs, long trunk, and big head, in which the pathological lesion consists in well-known changes in the epiphyses of the long bones. Parrot's description in 1878, was the first to establish the malady as a clear cut clinical entity. The big head has been somewhat puzzling to pathologists and clinicians alike. Virchow first called attention to the shortening of the base of the skull and explained it as a premature union of the tribasal bones. Kaufmann showed that this was due to a lack of development of the bones at the base of the skull, and others have observed that the enlargement of the head was inversely proportional to the development of intellect.

Dandy reports two cases, in one of whom, a boy of nineteen, he was able to demonstrate by ventriculograms a condition, of marked hydrocephalus; the patient's mentality was little

greater than that of a boy of six or seven. The cause of the hydrocephalus remains unclear, but Dandy's explanation is very plausible. One may quote his own words: "It is conceivable that the shortening of the base of the skull (which is part of the disease) may compromise the growing brain as to volume but more vitally as to position. A certain degree of kinking or bending of the brain stem should follow, and it is possible, or even probable, that thereby the lumen of the aqueduct would be reduced producing a partial occlusion . . . or it might obstruct the cisternæ under the pons and midbrain. This would inevitably cause hydrocephalus." He goes on to suggest that operation at an early stage to relieve the hydrocephalus would very possibly prevent the mental deterioration which is sure to develop. The article deserves attention, not perhaps so much because of its clearing up of an obscure condition in chondrodystrophy, which is a rare disease, but as an illustration of the value of these newer methods in the diagnosis of cerebral lesions accompanied by hydrocephalus. E. A.

**The Diagnosis and Treatment of Hydrocephalus due to Occlusions of the Foramina of Magendie and Luschka.** DANDY, WALTER E.: *Surg. Gyn. and Obst.*, Feb., 1921, Vol. 32, p. 112.

THERE is a specific cause for every case of hydrocephalus, which can be located by clinical tests during life. In a great many instances this cause may be removed by operative interference with every hope of a permanent cure.

One of the most common types of congenital hydrocephalus is caused by the closure of the foramina of Magendie and Luschka. These foramina form the normal channel for the passage of spinal fluid between the fourth ventricle and the subarachnoid space. These foramina are essential for the normal equilibrium of the cerebro-spinal fluid. In the ventricles the fluid is secreted; in the subarachnoid space it is absorbed. The closure may be due to the failure of these foramina to develop, or to a mild type of meningitis.

In adult life the clinical picture is difficult to differentiate from that of a cerebellar tumour.

In obstructive hydrocephalus, indigo carmine injected into a lateral ventricle is not recovered in the spinal canal. To determine the exact site of the obstruction the use of ventriculography is necessary. The ventricular fluid is completely

removed and air substituted. By means of the x-ray the exact site can then be located.

The treatment consists in the formation of a new opening between the cisterna magna and the fourth ventricle.

The writer operated successfully on two adult cases. Subsequent ventriculograms showed the new foramen to be functioning. G. A. F.

**Primary Pyloric Ulcer, cured by Gastroenterostomy. The Appearance of a Second Chronic Ulcer (nonpeptic), on the Lesser Curvature of the Stomach. End to end Gastroenterostomy, duodenojejunal Enteroanastomosis. Cure.**

Ulcère pylorique primaire, guéri après gastroentérostomie, apparition d'un second ulcère chronique (nonpeptique), à la petite courbure de l'estomac; gastroentérostomie termino-terminale, entéroanastomose (duodeno-jéjunostomie). Guérison. KOTZAREFF, A. et BALMER, P.: *Lyon Chir.*, Vol. 17, p. 449, July-Aug., 1920.

PATIENT was a male forty-seven years old, who for two years had had symptoms of pyloric obstruction. He was operated upon in January, 1917, when a movable tumour was found in the region of the pylorus: this was considered to be malignant and inoperable. A posterior gastroenterostomy was performed. The patient recovered his health and remained well until October, 1919, when he again suffered from gastric symptoms. These became gradually worse, and he was operated upon for the second time on January 12th, 1920.

At this operation it was found that the supposed malignant tumour of the pylorus had completely disappeared, leaving only a stellate scar on the anterior surface of the pylorus. An ulcer the size of a franc was found on the posterior wall of the stomach near the lesser curvature, about 12 cm. proximal to the gastroenterostomy opening.

The operation consisted of excision of the greater part of the lesser curvature and about one-third of the greater curvature. This necessitated the excision of the portion of the jejunum at the point of the former gastroenterostomy opening.

An end-to-end gastrojejunostomy was performed as well as an end-to-side entero-enterostomy.

The patient made an uneventful recovery, and left the hospital three weeks after the opera-

tion. He has continued to enjoy good health ever since.

The authors raise the following questions:

1. Is gastroenterostomy sufficient to cure a pyloric ulcer?
2. Does it prevent the formation of further ulcers?
3. Does it prevent the carcinomatous degeneration of the ulcer?

They state that along with Dr. E. Bircher they believe that these questions may be answered in the negative, and consequently they advocate "Excision of over one-third of the stomach in all cases of pyloric ulcer, where the patient's condition warrants the operation."

G. J.

#### Notes on the *Ætiology of Goitre.*

**Notes sur l'Étiologie du Goitre.** BOITEL, M. M.: *Rev. Med. de la Suisse Rom.*, Nov., 1920, p. 717.

In a long article well illustrated by maps of the district, the author after a short review of the history of the work done on goitre, discusses the physiology, pathogenesis and evolution of the disease. The various theories of the *ætiology* are discussed, special attention being paid to the chemical, infectious and physico-chemical theories.

In this connection he gives the result of his examination of the case reports of all the goitre cases (living in the Canton of Vaud), who were admitted to the Cantonal Hospital at Lausanne, during the thirty years from 1887 to 1917, also the statistics of the federal board of health for the same district.

The following are the points to which the attention is directed:—

1. The hereditary antecedents noted in each case.
2. The possible influence of a strumigenous factor attacking newcomers to a district in contradistinction to the native population.
3. The natural grouping of cases of goitre following the physico-geographical conditions.
4. The relation to typhoid fever, in so far as it is an infectious water borne disease.
5. The relative incidence in the rural population.

The following conclusions are arrived at:—

1. That goitre is very irregularly distributed throughout the Canton of Vaud.
2. That the distribution seems to coincide with certain physico-geographical groupings. The

minimum is found in the Jura Chain, particularly on the east flank; the maximum is found in the valleys of Broye and Mentue. The plain of the Rhone is more affected than the neighbouring mountains.

3. Heredity is present in 47 per cent. of cases.
4. No distinction was apparent as to the relative susceptibility to the disease as of newcomers to the native population.
5. That goitre has a distribution entirely different from that of typhoid fever, in fact that places where the incidence of typhoid was greatest the incidence of goitre was least and vice-versa.
6. The rural population are slightly more susceptible than the urban population but the difference is not marked.

7. No proof could be found that the primary cause of goitre is the want of free iodine.

The distribution of goitre in Switzerland does not correspond with the zone described by Hunziker as associated with the climates of regions located between the altitudes of 600 and 1,000 metres.

A very full bibliography is attached. G. J.

#### **A Clinical Study of Eighty-three Gastro-jejunal Ulcers.** EUSTERMAN, G. B.: *Minnesota Med.*, Nov., 1920, Vol. 3, p. 517.

GASTROENTEROSTOMY for benign ulcers is highly successful. Some causes of disappointment are as follows:

1. About two-thirds of the surgical failures occurred in cases in which operation was performed in the absence of a lesion intrinsic to the stomach or duodenum, especially where the symptoms are of neurotic origin.
2. Defects in surgical technique such as (a) The stoma being made too large or too small or improperly placed. (b) A long jejunal loop, or where the direction of the proximal portion of the jejunum is from left to right.
3. The failure to remove a diseased gall-bladder, appendix or the ulcer itself at the time of operation.

In a series of 3,700 gastroenterostomies for benign ulcer in the Mayo Clinic, *gastro-jejunal ulcer* was the cause of a secondary operation in 1.3 per cent. The symptoms may be identical or similar to the original complaint and in 88 per cent. appeared within one year after the original operation.

In making a differential diagnosis certain possibilities must be excluded such as the forma-

tion of a new ulcer, carcinomatous changes in a chronic ulcer, or the reactivity in the original partially healed ulcer.

Important features in reaching a conclusion are: (1) gross gastric retention, (2) small movable mass in the region of the umbilicus, (3) post-operative pain assuming a lower level, (4) bleeding, in the absence of preoperative hæmorrhage, (5) roentgenologic examination.

The actual cause of the lesion has not yet been definitely determined. The use of unabsorbable sutures is a highly important factor as the material is often found at the second operation in the suture line or in the ulcer area. Contributory cause may be in the rough handling or bruising of the tissues.

It is rather remarkable that the ratio of males to females with this condition is seven to one.

The author points out, that our greatest hope of reducing the incidence of the disease lies in a careful operative technique combined with immediate and continued post-operative medical management.

G. A. F.

**Some Remote Results of Intervention for Meso-gastric Ulcers. Quelques résultats éloignés d'interventions pour ulcères méso-gastrique.** LECENE, P.: *J. de Chir.*, Jan., 1921, Vol. 17, p. 1.

THE author gives reports of five cases of ulceration of the stomach involving the middle zone. The symptoms in all the cases were typically those of gastric ulcer which was confirmed at operation. The summary of each is as follows:

Case 1. Suffered for fifteen years with gastric symptoms, having been operated upon in October, 1910, when notes of the condition were made as follows: Marked thickening of gastric wall from level of lesser curvature to greater occupying the whole mid-gastric area with consequent narrowing. There was no narrowing of the pylorus. Diagnosis—meso-gastric ulcer. Meso-gastric resection with end to end anastomosis was done, particular attention having been paid to direct ligation of vessels which the author considers as the most important step in the technique of the whole procedure. Sutured without drainage and uneventful recovery. This case was seen again in 1920 and has been classed as a cure.

Case 2. Suffered for twenty years, operated upon in January, 1913. A meso-gastric ulcer

was found on the lesser curvature. There was marked narrowing of the stomach, the posterior wall of which was adherent to the pancreas. Meso-gastric resection was done which did not change the form of the stomach but only shortened it. Uneventful recovery. Case was seen again in 1920. Patient eats everything and works every day in factory.

Case 3. Suffered for thirty years. Operated upon in March, 1914. In this case a new oblique incision was used instead of that in the median line, and was employed in all subsequent cases. The oblique incision extended from the left costal border to a point a little above the umbilicus in the midline, cutting the left rectus obliquely. An hour-glass stomach was found, the posterior wall of which was adherent to the pancreas. Meso-gastric resection with end-to-end suture was done. Seen again in 1920 when stomach condition was entirely cured.

Case 4. Suffered for twenty-five years. Operation June, 1914. An hourglass stomach found, but as the patient was in poor condition resection was not performed but gastro-gastrostomy similar to pyloro-duodenostomy of Finney was done. This patient was seen again in 1920 and during the interval had two attacks of gastric distress each, however, having been relieved within a week by dieting.

Case 5. Suffered for four years. Operation in June, 1914. An hour-glass stomach found and meso-gastric resection was done. Seen again in 1920. During the last few months there has been a recurrence of pain and loss of weight.

The author emphasizes the oblique incision and the importance of direct ligation of vessels in gastric surgery.

R. B. M.

**The Surgical Treatment and the Pathology of Gastric and Duodenal Ulcer.** DEEVER, J. B., and REIMANN, S. P.: *Surg., Gyn. and Obst.*, Feb., 1921, Vol. 32, p. 103.

THE authors believe that the treatment of chronic peptic ulcer is, with but few exceptions, essentially surgical. Few ulcers give symptoms sufficiently early to enable them to be treated medically with any degree of success.

In his series of cases (comprising one hundred and three) 90 per cent. had freedom from symptoms two to three years after operation. Excision of the ulcer with knife or cautery is the operation of choice, but cannot in all cases be carried out, owing to its position, or to the involvement of neighbouring viscera.

Gastroenterostomy should also be performed in all cases where marked hyperacidity is present before operation. The success of the operation depends to a large extent on the post-operative treatment. Restriction of the diet for at least six months is most essential. G. A. F.

#### **Artificial Pneumothorax in Fractured Ribs.**

SORESI, A. L.: *J.A.M.A.*, Feb. 5, 1921, Vol. 76, p. 379.

IN a case of fracture of the sixth, seventh and eighth ribs where strapping failed to relieve the pain, Soresi induced an artificial pneumothorax, repeating nitrogen injections three times, giving great relief to the patient.

He suggests this form of treatment provided there is no injury to the lungs or pleura, thereby putting the affected thorax at rest. F. J. T.

### **ORTHOPÆDICS**

**The Necessity of Orthopædic Training; its Relation to the Prevention and Cure of Deformities.** JONES, ROBERT: *Brit. Med. Jour.*, Feb. 5th, 1921, p. 181.

IN this, the Cameron Lecture at Edinburgh University, Sir Robert Jones begins by indicating elementary orthopædic principles to be invoked by the family physician. In the case of congenital club-foot the cure should be begun early, long before the baby can walk, and should be carried through to a conclusion. The child should be able when cured to even correct voluntarily its own deformity.

Attention should be paid to the prevention of rickety deformities by insisting on mother's milk, fresh air and the avoidance of overcrowding. When the bones are soft, crawling and walking should not be permitted. Tuberculous joints come first under the eye of the practitioner, by whose efforts deformity may be minimized.

In acute anterior poliomyelitis, treatment should consist of complete rest of nerves and muscles and should be undertaken early in the disease. Paralyzed muscles should not be allowed to be overstretched.

In discussing orthopædics in the war mention is made of the deplorable lack of orthopædic training seen in the early years, especially in connection with malunion and nonunion fractures, scars, and stiff joints of all kinds. In consequence of this orthopædic centres were formed,

until 20,000 beds were eventually in use. The advantage of segregating certain cases under surgeons especially interested in them was insisted on, as for instance fractures of the femur. Surgeons had to be especially trained for military orthopædic surgery, and mention is made of trained orthopædic surgeons from America.

Sir Robert Jones then goes on to speak of the lack of orthopædic lectureships and clinics in Britain, and points out that orthopædic surgery was looked down upon formerly because it was supposed to deal only with flat-feet, knock-knees, club-feet and certain other deformities. With the war, however, had come a gradual expansion of its definition and with this the demand for a higher degree of skill. The organization of an Orthopædic Department for a teaching hospital is then discussed. It should not be simply an outdoor department, but should have as many beds as are necessary for the orthopædic material, about forty beds out of a three hundred bed surgical service. At its head should be an orthopædic surgeon. An orthopædic registrar, or assistant surgeon should be selected as a man desirous of practicing orthopædic surgery. The house-surgeon should be appointed for at least six months, and the nursing staff should be permanent, as much time and perseverance are necessary to train them in the application of splints and plasters.

A physio-therapeutic department should be closely allied to the orthopædic, but still independent of it, as a department used by all the physicians and surgeons.

Whatever definition of orthopædic surgery is adopted, the general surgeon should have the right to admit any cases to his wards. The scope of Orthopædic Surgery according to Sir Robert Jones should be: (a) Congenital and acquired deformities of the spine and extremities. (b) Infantile paralysis after the acute stage. (c) The deformities of adult paralyses. (d) Stiff and ankylosed joints. (e) Torticollis. (f) Disabilities of joints, such as rupture of crucial ligaments, injuries to semi-lunar cartilages, snapping hip, slipping patella, and those conditions which are included under the aggressive title of "bone-setting."

The orthopædic surgeon should have the right, in common with the general surgeon to treat recent fractures. If he is competent to deal with malunited fractures he should find it easier to prevent deformity than to reconstruct the limb.

The teaching of orthopædic surgery, in a Medical School is then discussed. This is best done at the end of the curriculum and should consist of some twenty demonstrations of two hours each, for the most part given in the out-patient department.

Sir Robert Jones ends by advocating country, as opposed to city hospitals for crippled children, and diplomas and university degrees in orthopædic surgery. Edinburgh University is congratulated on establishing an Orthopædic Department with a Lectureship.

J. A. N.

### **Traumatic Dislocation of the Knee Joint.**

PLATT, HARRY: *Brit. J. S.*, Vol. 3.

THE writer, after referring to the numerous cases, of varying severity, of injury to the crucial ligaments, met with more especially in military surgery, reports a case of traumatic dislocation of the knee, the result of a fall in April, 1916.

It is noteworthy that, at the time of accident, there was very little effusion in or about the knee joint, and that there was no sign of vascular obstruction in the lower leg.

The diagnosis was confirmed by x-ray. Reduction under anæsthesia presented no difficulty.

The after treatment consisted of seven days in hospital and the patient was then discharged with the knee immobilized in a plaster cast. This was worn for four months, and followed for six weeks by a Thomas caliper splint. The patient then walked with comfort, and seven months after his accident resumed work at general labour.

At the time of removal of the plaster cast there was only 5 degree movement in joint but stability was good. Eleven months later, movement had increased to 20 degrees, beyond which, firm resistance was encountered. It was considered that further increased range of movement would not occur, and the stability of the joint was excellent.

In May, 1920, the patient reported that he had served two years in the army without any incapacity, and on demobilization was fit for the heaviest work.

The knee joint shows now four years after the accident, a flexion movement of 90 degrees, perfect stability and, is in all other respects normal.

The writer emphasizes, as the one essential feature in the after treatment of all grades of crucial ligament injury, the continuation of

immobilization for a considerable period, pointing out that stability of the knee joint must be aimed at, even at the expense of range of motion.

W. J. P.

### **Fascia used to Mobilize a Stiff Knee the Result of Gun Shot Wounds.**

GODDU, L. A. O.: *Boston Med. and Surg. Jour.*, Feb. 24th, 1921.

THIS is a case report of a young man who suffered a shotgun wound of the left knee in October, 1915, with considerable loss of soft tissue and a partial loss of patella and articular surface of the femur. Suppuration followed, but healing occurred in four months. The condition in April, 1916, was that of a very painful stiff knee showing at most only 5 degrees of movement.

On April 24th, 1916 a fascia lata transplant was done in the joint, and movement begun four days later. In ten weeks time, the patient was back at work, with 75 degree movement, and in December, 1916, he reported that he had not lost a day's work and now had 90 degree movement. In December, 1919, the knee was, to all intents and purposes, as useful as the other. The writer emphasizes the importance of conservation, and mobilization.

W. J. P.

### **The Operative Treatment of Infantile Paralysis.**

LOVETT, R. W.: *Surg., Gynec. and Obst.*, Jan., 1921, Vol. 32, P. 20.

AN important contribution to orthopædic literature. Dr. Lovett's formulæ is that any patient of average intelligence with flaccid paralysis of the lower extremities, abdomen and back can be made to walk in some form or other, provided he has one good arm, and one arm good enough to hold or catch. This applies not only to poliomyelitis but to fracture of the spine with total flaccid paralysis. The Soutter operation is recommended for hip contracture, while knee contracture and the equinus deformity can usually be overcome without the use of the knife. Tripod walking is explained. The analysis of a limp is gone into carefully, and that due to gluteus medius and maximus paralysis considered fully. The patient should be examined in the nude condition. The limp due to paralysis of the hip flexor muscles and of the abdominal wall is also discussed. These four factors in causing a limp are often overlooked because not so obvious as is for example a foot deformity. All four types of limp are

difficult to remedy by operation, but can be helped by mechanical means.

Dr. Lovett considers that the Whitman operation is being abused, though an admirable operation where operation is necessary. Tendon transplanation is a useful and brilliant operation in selected cases; tendon fixation has proved on the whole satisfactory. Silk ligaments have been given up. In a paralyzed arm the minimum acquirements are (1) flexion power of the hand and fingers, and (2) ability to move the scapula on the thorax. Arthrodesis of shoulder and elbow is spoken of favourably. J. A. N.

**Critical Comments on a Paper Entitled "Astragalectomy in Paralytic Feet."**

WHITMAN, ROYAL: *Jour. of Orthopædic Surg.*, Jan., 1920, Vol. 3, p. 18.

THIS is in reply to Dr. Sever's article in the *Journal of the American Medical Association*, October 30th, 1920.

Dr. Whitman points out that the operation was originally designed by him for paralytic calcaneus, often combined with valgus. It is based on pure mechanics, and if it is properly performed, the result, in older subjects, whose tissues are stable, is practically assured. In some cases, especially in children, there is a tendency towards varus. It has been found serviceable in recent years in other forms of paralytic deformity, even equinus. It restores stability of the foot, particularly resistance to dorsal flexion, thus enabling the patient to lock the knee in cases of quadriceps paralysis. Dr. Whitman points out that in 45 per cent. of the cases of calcaneus type reported by Sever failure was complete, and it may be ascribed with certainty to insufficient backward displacement of the foot, *i.e.*, imperfect operative technique. Dr. Whitman infers that the treatment at the Children's Hospital, Boston, leaves much to be desired in connection with this operation. He also states it may be that an operation designed for paralysis of the gastrocnemius is often indicated even when this muscle is active, as in 33 per cent. of Dr. Sever's recorded cases, but such a novel application of the procedure should receive separate analysis. J. A. N.

**Pain in the Lower Back.** McCRAE, THOMAS: *The Med. Clin. of North Amer.*, Jan., 1921, Vol. 4, p. 973.

Dr. McCRAE discusses five patients with low

back pain. The first case had a sudden onset of pain brought on by stooping and was diagnosed "lumbago" or an inflammatory process of the fibrous tissue in the lumbar fascia.

Case 2 was a spondylitis or fibrositis due to tonsillar infection. The spine in this case showed unevenly restricted movement with negative x-ray findings.

Case 3 was due to a spondylitis, the pain of which cleared up under anti-syphilitic medication. In Case 4 the pain was due to sacro-iliac joint disease, apparently non-tuberculous, and in Case 5 prostatic disease caused pain referred to the back.

Dr. McCrae classifies pain in the lower back (excluding acute diseases such as typhoid and smallpox) as follows:

1. Diseases of the nervous system. Meningitis (especially syphilitic) tumours of the meninges, tumours of the cord and cauda equina.
2. Diseases of the spine, spondylitis and perispondylitis, injury, new growth, tuberculosis. Anatomic peculiarities, such as a long transverse process of the last lumbar vertebra.
3. Disease of the muscles and fibrous tissue: fibrositis, "lumbago".
4. Diseases of the pelvic bones.
5. Sacro-iliac joint disease.
6. Diseases of the bowel: carcinoma of the rectum especially.
7. Diseases of the urinary tract: kidney, ureter, bladder, prostate, seminal vesicles and deep urethra in males.
8. Diseases of the pelvic organs in females.

J. A. N.

**GENITO-URINARY SURGERY**

**Carcinoma of the Prostate.** BUMPUS, H. C.: *Surg. Gyn. and Obst.*, Jan., 1921, Vol. 32, p. 31.

ATTENTION is called to a need of complete recapitulation of the treatment of carcinoma of the prostate. This has been made necessary by the recent introduction of radium as a therapeutic agent. A careful study is made of three hundred and sixty-two cases of carcinoma of the prostate observed at the Mayo clinic from 1914 to 1919 inclusive.

The lymphatic drainage of the prostate begins by fine capillaries around each glandular acinus and eventually empties into three main groups, internal iliac, external iliac and common iliac, (at the promontory of the sacrum).

Metastasis may occur without giving rise to clinical symptoms and every means must be used to arrive at a diagnosis. Neurological and x-ray examinations are indispensable. In the series of three hundred and sixty-two cases, metastasis was found in 21.8 per cent. In 10.2 per cent. the glands of the pelvis were involved.

Pain is the most striking symptom. Sciatic pain is the most frequent. Many cases complain of pain in lower back. The explanation of pain is not clear—certainly a great number have pain without metastasis—ninety-four of the total three hundred and sixty-two cases.

Local enlargement of the prostate is not always found, but usually the malignant condition is associated with simple hyperplasia. The relationship of simple hypertrophy to malignant disease is still under discussion, but in nearly every case the malignant change begins in the posterior lobe.

Rectal examination usually reveals an irregularly enlarged stony hard gland. Essentially an infiltrating growth, it spreads upwards into the seminal vesicles beneath Denonvillier's fascia resulting in unicornuate or bicornuate growth. The microscopic picture is an adenocarcinoma.

Radium therapy is more successful in the large type than in the smaller, well encapsulated type.

Bone involvement occurred in 5.1 per cent. of the seventy-nine cases with metastasis, usually in the spine and pelvis. Pulmonary changes are rare and occur late in the disease. Clinical symptoms are varied. Haematuria is very rare. Retention is more apt to occur in the large non-metastasis type than the others. Frequency and difficulty were found in more than 50 per cent. of the cases. The urine shows varied changes, but in eighty-seven cases it was found to be normal. The average age of the patients was 64.5.

R. E. P.

**A Study of the Spinal Fluid in Fifty-two Cases of Congenital Syphilis.** KINGERY, LYLE B: *Jour Amer Med Asso.*, Jan. 1st, 1921, Vol. 76, p. 12.

ROUTINE tests of the spinal fluids of fifty-two cases of definite prenatal syphilis whose ages varied from three weeks to twenty-one years were made. Deviation from the normal spinal fluid was found in fifteen cases and they are divided into two groups, according to the extent and severity of involvement.

Group 1 included four cases presenting only

slight changes and in these the spinal fluid corresponded with slight pathological changes. In Group 2 the more severe types showed grosser changes in spinal fluid, positive Wassermann reactions, pleocytosis and relative increase in albumin and globulin.

Spinal punctures as a routine are urged in these cases because of the value as a diagnostic and prognostic feature and as a guide to intrathecal treatment in cases showing spinal involvement.

A. M. J. T.

**An Experimental Study of the Latent Syphilitic as a Carrier.** EBERON, FREDERICK and ENGMAN, MARTIN F.: *Jour. Amer. Med. Asso.*, Jan. 15th, 1921, Vol. 76, p. 160.

IN a series of cases of latent syphilis, rabbits' testes were inoculated with (1) macerated inguinal gland; (2) semen; (3) blood; (4) spinal fluid and (5) nasal washings.

Syphilitic lesions were set up in five rabbits, three from inoculations with inguinal glands and two from semen. Blood, spinal fluid and nasal washings gave negative results.

The incubation period for positive cases varied from fifty-four days to seven months and in each case the spirochæta pallida were definitely recovered and grown through a second generation.

None of the cases used showed any clinical evidence of syphilis, except slightly positive Wassermann reactions. Two cases gave a history of syphilis dating back eleven and thirteen years. One case had a negative Wassermann after treatment one year previously and at the time of inoculation had a one plus reaction with cholesterol antigen.

Spirochæta pallida are harboured in an active virulent form for years after syphilitic infection in cases with intermittently negative Wassermann reactions or only slight reaction in cholesterol antigen.

A. M. J. T.

**RADIOLOGY**

**Discernment of Intrathoracic Neoplasms by Aid of Diagnostic Pneumothorax.** FISHBERG, MAURICE: *J.A.M.A.*, Feb. 26th, 1921, p. 581.

THE author proposes to use "diagnostic pneumothorax for the purpose of discernment of intrathoracic neoplasms along the lines of pneumoperitoneum, used in intra-abdominal conditions". He writes, "In cases in which there is no pleural effusion the technic is simple. We employ

the usual technic of artificial pneumothorax, injecting several hundred cubic centimeters of nitrogen or air into the pleural cavity, using any of the standard apparatus and a manometer for the purpose. When the lung is collapsed the solid tumour is clearly seen on the plate. In those in whom an effusion has occurred and it is suspected that it is secondary to a neoplasm, the fluid is first withdrawn with a Potain apparatus." This is then replaced with air. When pus is present a pneumothorax needle is used. As much as 1,000 c.c. of air may be allowed to enter, the amount depending on the condition of the patient and the pressure read in the manometer. The injection is always stopped when the positive pressure reaches 10 c.c. of water. Immediately following this the patient is examined fluoroscopically and one or two radiograms made, with the patient in the erect position.

It is not recommended to induce a pneumothorax in cases with aneurysm. J. D. M.

#### **Pneumoperitoneum of the Pelvis. Gynaecological Studies—Preliminary Report.**

VAN ZWALUWENBURG, JAMES G.: and PETERSON, REUBEN: *Amer. Jour. Roentgenol.*, Jan., 1921, Vol. 8, p. 12.

By perfecting a new technique and assuring greater co-operation between the gynaecologist and the roentgenologist, the authors have been able to obtain results that give increasingly valuable information to the clinician, and which simplify the x-ray procedure. The outstanding features of their technique are as follows:—

- (1) Inflation of the pelvis is carried out by the gynaecologist in his examining room.
- (2) Carbon dioxide gas is used as being more readily absorbed than oxygen; 1½ to 2 litres is sufficient.
- (3) The patient is placed in the knee-chest position, being supported on a wooden frame.
- (4) The x-ray exposure is made with a portable Coolidge unit, duplitized films with screens being used. Additional information may be obtained by taking stereoscopic plates.

Normally, the anterior and posterior pelvic pouches are empty of everything but gas. Pathologically, changes such as adhesions or inflammatory exudate may occupy one or both of the pelvic pouches. The bladder when empty, is scarcely discernible. The broad ligaments appear as narrow linear shadows. The round ligaments are not seen in the normal pelvis. The Fallopian tubes are not to be differentiated

from the broad ligament shadows. The shadow of the normal ovary is incorporated in the uterine shadow. Inflammatory changes, fibromata, pregnancy and alteration in axis of the uterus provide features which are of material advantage in diagnosis to the observer conversant with the normal. A. S. K.

#### **An Instrument for the Application of Radium to Tumours of the Bladder.**

WOOLSTON, W. H.: *Surg. Gyn and Obst.*, Dec., 1920, Vol. 31, p. 627.

A CLIP made of a watch spring is attached to a capsule of platinum, silver, or gold, which contains the radium. The arms of the clip cross each other forming a figure-of-eight. To the opposite end of the capsule is attached a strong silk cord or fine wire. The forceps used to attach the capsule to the bladder wall have a hollow cylindrical shaft about fourteen inches long with a hollow obturator. It can be used only through a direct operating cystoscope, or, in the female, through a Kelly cystoscope. When the capsule and clip are drawn into the forceps the closed end of the figure-of-eight is compressed, opening the jaws of the clip. The capsule may be attached above the tumour on the normal mucosa so that it hangs over the growth, or to the tumour itself. Several capsules may be applied at one time. The bladder should be kept distended with five or six ounces of sterile water while the radium remains. When the clip is attached and the cystoscope removed the guide of silk or wire is fastened to the thigh with adhesive until the radium is taken out. J. D. M.

#### **Topical Applications of Radium.** BOWING, H. H.: *Amer. Jour. Roentgenol.*, Dec., 1920, Vol. 7, p. 582.

It is necessary to define "milligram hours" in each case. The amount of radium used, multiplied by hours applied, gives the number of milligram hours. Applying 50 milligrams of radium for twenty hours is not the same as applying 20 milligrams for fifty hours, although the total of milligram hours is the same. The term "erythema dose" represents 1,000 milligram hours of radium delivered to one square inch of skin surface at a distance of one inch filtered through the silver wall of the applicator and 2 mm. of lead. The term "distance screening" indicates that some substance such as cork, wood or gauze has been interposed between

the radium and the skin surface overlying the area to be radiated.

Cancer of the breast, primary and secondary sarcoma, Hodgkin's disease, tuberculous adenitis and splenomyelogenous and lymphatic leukemias respond to topical applications of radium and deep x-ray therapy. The reader is referred to the article for details of treatment in these conditions.

W. A. W.

### ANÆSTHESIA

**Synergistic Colonic Anæsthesia.** GWATHMEY, JAMES I.: *J.A.M.A.*, Jan, 22nd, 1921, Vol. 76.

THE writer of this article defines synergism as "reciprocal augmentation of the action of one drug by that of another". The effects, he says of two such drugs is not a matter of simple summation of similar pharmacological actions as it is altogether too great.

The late Samuel J. Meltzer is quoted as saying: "When after the administration of a very small amount of ether, insufficient to cause anæsthesia, an inefficient amount of magnesium sulphate is injected intramuscularly, a profound anæsthesia follows, which can be maintained for several hours."

Magnesium sulphate in small amount added to the usual hypodermic of morphine increases its value 50 to 100 per cent. Clinical results at the Presbyterian Hospital, N.Y., showed that:

1. General analgesia could be obtained by morphine and magnesium sulphate alone.

2. With three hypodermic injections of morphine gr. 1-8 and 2 c.c. of magnesium sulphate, supplemented by nitrous oxide and oxygen, the latter in much larger proportions than usual, an analgesic state with unconsciousness and complete relaxation was secured, entirely eliminating the use of ether.

3. One-eighth of a grain of morphine by hypodermic injection in 2 c.c. of 25 per cent. solution of magnesium sulphate in water given two hours before operation and repeated at half-hourly intervals is sufficient to reduce the amount of ether heretofore used in oil ether colonic anæsthesia by one half.

W. B. H.

**Intratracheal Insufflation of Ether in Operations which involve Bleeding into the Air Passages.** SHIPWAY, T. E.: *Amer. Jour. Surg.*, Jan., 1921.

THIS paper is based on an experience of four hundred and seven cases. They included:

(1) Gun shot wounds of the face, mouth and pharynx. (2) Non-malignant disease of the mouth and pharynx. (3) Malignant disease of the mouth and pharynx.

Class 3 is divided into (a) cases in which the glands were removed at the same time as the primary growth, and (b) cases where the primary growth alone was removed.

The writer claims that this method is not followed by aspiration or septic pneumonia even in the most septic mouths. He had six cases of acute bronchitis afterwards, but these patients were emphysematous or had chronic bronchitis at the time of the operation. There were no cases of pneumonia following the operation.

He emphasizes the usefulness of this method in old patients with impaired cardio-vascular systems.

W. B. H.

### MEDICINE

**Leukæmia: Type Diagnosis by Oxydase Method of Blood Staining.** LAMBRIGHT, GEORGE I.: *Amer. J. M. Sc.*, Feb., 1921.

THE writer gives a short account of this method for the differentiation of lymphocytes and cells of the bone marrow. The reaction is described, and the formulæ of the solutions and the directions for using are given. The method is simple and the results are said to be very satisfactory.

To anyone who does differential white blood counts, any method which will assist him in placing in their proper classes those indefinite transitional cells, large lymphocytes or large mononuclear cells, is well worthy of consideration.

R. H. M. H.

**The Influence of Sugars and Candies on Gastric Secretion.** MILLER, RAYMOND J., BERGEIN, OLAF, REHFUSS, MARTIN E., and HAWK, PHILIP B.: From the Laboratory of Physiological Chemistry of Jefferson Medical College, Philadelphia. *Amer. Jour. Physiol.*, Aug., 1920, Vol. 53.

THE widespread use of refined sugars and candies in the diet is a modern development, and the question arises whether such foods are harmful or not. Certain objections such as eating before meals which decreases appetite and consequently the intake of essential foods as proteins, vitamins and salts are evident. The depression of appetite is associated with depression of

gastric secretion, which depression is studied in this paper.

It is possible that long continued and excessive use of these foods may lead to diabetes but there is no concrete evidence of this.

Sugars and candies are particularly suited to furnish an easily assimilated supply of energy—a single caramel may furnish forty-five calories, that is sufficient energy for a mile walk—so that they have a definite food value.

This paper is a report of work done to determine the influence of certain sugars and candies on the gastric secretion and gastric motility in normal adults and was carried out on medical students and members of the college staff. The sugar and candies were given on an empty stomach and examinations were made at fifteen minute intervals for free and total acidity, pepsin, trypsin and amino acid nitrogen.

Many different kinds of candies such as hard, soft and chewing, were studied and their effects were noted, and in as much as some candies entered the stomach in a concentrated form, a preliminary investigation of the effects of dilute and concentrated solutions of cane sugar and glucose was worked out.

Cane sugar and glucose were given in 4 and 6 per cent. solutions in amounts to contain about 10 grams of sugar. In these dilutions they were evacuated from the stomach in normal time and the gastric secretion showed no depression (curve given). When maple sugar was used it was found to leave the stomach sooner and without depressing the secretion.

When these same sugars were used in concentrated solution it was found that they remained much longer in the stomach and that the gastric secretion, especially in the case of glucose, was greatly depressed, at least until most of the solution had left the stomach.

When soft candies such as chocolate creams, fudge, bonbons and wafers were given, they entered the stomach quickly and acted as concentrated sugar solutions, that is they depressed both motility and secretion. When actual chocolate was used a more active secretory response was the rule than when such things as the contents of the chocolate creams were used alone. Large quantities of the substance to be tested were used, generally about 100 grams.

Hard candies were tested by getting the subject to suck lemon-flavored stick candy for 15 minutes and weighing the stick before and after. In this way from 7 to 15 grams were swallowed.

No water was taken during the experiment so that the sugar was in a moderately concentrated solution in the stomach. In this experiment it was found that the stomach emptied itself in one hour and that a fair amount of acidity was developed, showing that hard candies were less depressing to the gastric functions than the soft kind.

Chewing candies such as caramels, taffy and gum drops were also studied. Caramels caused a marked secretory response, but all left the stomach in about the same time.

The findings of the study were that candies depress secretion and evacuation in proportion to their sugar contents and the amounts ingested. This tendency is influenced by such substances as milk, eggs and chocolate in the confections, which tend to stimulate secretion and so cause differences in the curves.

The work done was quite exhaustive and carefully carried out; the findings are of interest and of considerable practical importance.

R. H. M. H.

**A Case of Tricuspid Stenosis.** COTTON, MILLE. E. and SALOZ, M. C.: *Archives des Maladies du Cœur des Vaisseaux, etc., Paris*, Nov., 1920.

THE authors draw attention to the difficulty of diagnosis and cite Fletcher's series of one hundred and ninety-seven cases, confirmed by autopsy, in which pulmonary stenosis was the only lesion found in fourteen, and the diagnosis made in life in only eight cases.

The patient reported in the present article was a girl of seventeen years. The main facts in the history were: cyanosis appearing early in life, but not persisting, also frequent attacks of dyspnoea and cyanosis.

The characteristic findings on physical examination were: the cyanotic hue, marked clubbing of fingers, a small regular pulse of 120 per minute, and an enlarged, tender, and pulsating liver associated with throbbing veins in the neck. The heart showed enlargement to the right confirmed by x-rays.

There was a transient presystolic thrill and murmur of maximum intensity at the xiphoid cartilage, and at the same area a harsh systolic thrill and murmur.

She died in an acute paroxysm of dyspnoea and cyanosis.

The post-mortem findings were dilatation and

hypertrophy of the right auricle and ventricle. The tricuspid valve was in the form of a crevice admitting only the point of thumb, the valve edges being united into a rigid straight membrane. The remainder of heart was normal.

The endocarditis was considered to be of foetal origin.

C. F. M.

#### **Parietal Endocarditis of the Right Auricle.**

LUTEMBACHER, R.: *Archives des Maladies du Cœur des Vaisseaux et du Sang, Paris*, Nov., 1920.

THE author reports the occurrence of such a condition in a man of sixty, who presented much the appearance of a patient with loss of cardiac compensation, venous stasis and general anasarca. However, physical and x-ray examinations revealed no valvular lesion or pericarditis. Digitalis and the diuretics had no effect on the ascites which increased. In contrast with the marked venous stasis, acites, enlarged liver, etc., the veins of the neck were not distended, there was no marked dyspnoea, no orthopnoea.

The failure of digitalis, diuretics and salt free diet to make an impression on the oedema, and the addition of signs and symptoms of a pulmonary infarct led to the diagnosis of thrombosis of the right cavity of the heart.

At autopsy there was found a solid fibrinous clot implanted on the wall of the right auricle and partly obliterating the orifice of the inferior vena cava. Heart and vessels were otherwise normal. There was an infarct in the lung.

C. F. M.

### **DERMATOLOGY**

**The Herpes-Varicella Infection.** CARVER, A. E.: *Brit. Med. Jour.*, Feb. 12th, 1921.

THE writer discusses the question of herpes arising from the same cause as varicella, and also of their being intercommunicable. This connection was apparently first commented on by Bokay, twenty-nine years ago, and since then a large number of cases have been reported, in which varicella has developed in persons associated with cases of herpes zoster. In most of these cases, Dr. Carver points out that the incubation period was that of varicella. He quotes a suggestion made by Dr. Cranston Low in 1919, that the same virus caused both diseases, but that in herpes zoster it spreads from the nose along the lymphatics to the olfactory nerve

and cerebro-spinal fluid, while in varicella the infection is blood borne.

Dr. Carver quotes three cases of varicella which developed in three children, in widely separated areas, the infection arising, he suggests, from a case of severe supraorbital herpes, with which the children had all been associated within periods up to twenty days before their illness.

He thinks that the contraction of varicella from herpes occurs only during the period of onset and development of the latter.

H. E. M.

### **NURSING**

**Care of the Patient Before, During and After Anæsthesia.** SIEKE, JULIA M., R.N., *The American Journal of Nursing*, Jan., 1921, Vol. 21, p. 220.

THERE ought not to be a routine preparation for anæsthesia, the patient's temperament, general condition, nature of the operation, anæsthetic used and state of mind all play an important part in recovery. Every patient should receive special consideration and the anæsthetist should look after it. The nurse anæsthetist is handicapped, she is allowed only half the work, it is usually forgotten that she has any interest in the preparation. The nurse who prepares the patient for operation can do a great deal towards his peace of mind.

A hot, cleansing, bed-bath ought to be considered an important feature, if not contraindicated. Urotropin gr. v. with a glass of water, every four hours for twenty-four hours before operation is valuable, but all preparation as well as after care should be suited to individual need. Specimens of urine should go to the laboratory the morning before operation, and the report of the urinalysis should be on hand with the history of the patient, when the anæsthetic is chosen. Preliminary narcotics are advisable, a more complete anæsthesia is thus obtained with less anæsthetic, fear is largely eliminated and post-operative pain diminished, atropin-sulphate gr. 1-150 or 1-200 given with morphia counteracts the depressing effect and dries bronchial secretions.

Metabolism should be kept as normal as possible, the walls of the stomach become irritated after twelve hours without food and the amount of glycogen is diminished; it is claimed that post-operative nausea and vomiting are chiefly due to the disturbances in metabolism. Grue's of barley, rice, oatmeal, etc., may be given up

to within three or four hours of operation, unless contraindicated as in intestinal obstruction.

Before beginning the anæsthetic, look over the chart. If patient is old without teeth, place a gauze wedge between the gums. A certain amount of muscular pain may be avoided by a well padded operating table. Patient's head should be covered before leaving the operating room, as it is frequently moist with perspiration and a draft may lead to post-operative colds in the head. When patient is out of ether, four ounces of hot water with sodium bicarbonate gr. v. may be given. After care must differ with the patient, the operation and the anæsthetic used; in routine treatment patients are often starved unnecessarily.

M. S.

**Bedside Care in Acute Communicable Diseases.** Staff Instructors, University Course in Public Health Nursing, Cleveland. *The Public Health Nurse*, Dec., 1920, Vol. 12, p. 978.

THE technique used, calls for a gown, cap, face mask and a supply of paper towels; the nurse leaves her hat and coat in an outer room, folding coat outside out and placing hat on it, she opens her bag in kitchen or bath-room, spreads out paper towels on which soap, brush, and towels are placed after washing her hands, she also spreads on the towels, thermometer, absorbent cotton, alcohol, gown, cap, and large paper bag. Bag is then closed, she put on gown, mask and cap, and rolls up sleeves: first, takes patient's temperature, then wraps thermometer in alcohol pack while giving nursing care ordered by doctor, when this care is finished (including demonstrations of soaking and boiling linen, sterilizing dishes, etc.), the nurse removes mask, scrubs hands and removes gown, exposed side of cap and gown are folded in and both are placed in the large paper bag, which is closed preferably with a label and given to mother to keep unopened until next visit, hands are again washed,

thermometer removed from alcohol, washed with soap and water and returned to bag, paper mask and towels are burned. Instruction as to isolation, ventilation, diet, etc., are given to mother and bedside notes written and left for doctor. That the nurse can safely go from one case to another is proved by the fact that for two years this has been our policy and not once has there been transfer of infection.

M. S.

**Should Instruction in Tuberculous Nursing Be Given During Training?** HOUSTON.

JOHN WALTER: *The American Journal of Nursing*, Jan., 1921, Vol. 21, p. 217.

AN awakened medical profession is endeavouring through organizations of various kinds to teach the public that tuberculosis is curable and that if intelligent co-operation of the public can be secured the dreaded disease can be blotted out. Is it conceivable that our nurses want no part in this movement. Is it fair to the trained nurse to send her out without any knowledge of the disease which is responsible for one death in ten.

Into the minds of student nurses should be instilled such practical knowledge as shall tend for the same wise treatment as is given other diseases of bacterial origin. There should be no more dread of attending a case of pulmonary tuberculosis than of a septic surgical case. When a nurse objects to caring for a tuberculous patient from fear of contracting the disease, it is evident she has not had proper instruction in her school. With the constant increase in scope of the medical Social Service, there is a broad field for the nurse trained in the specific needs of the tuberculous.

The public health nurse must be technically educated for her work; the doctor is at arms' length from the patients, but the visiting nurse can see what is going on in the home and can get things done. Training should be provided as a part of the general training received in our schools. Provision for affiliation with sanatoriums and hospitals caring for tuberculous patients should be made.

M. S.

## News Items

## ONTARIO

**THE PRELIMINARY PROGRAMME FOR THE FORTY-FIRST ANNUAL MEETING OF THE ONTARIO  
MEDICAL ASSOCIATION TO BE HELD AT THE CLIFTON HOTEL, NIAGARA FALLS,  
MAY 31st, JUNE 1st, 2nd and 3rd, 1921**

**GENERAL NOTES REGARDING THE  
MEETING**

THE Committee on Arrangements has completed plans for the comfortable accommodation of all members attending. The Clifton Hotel will accommodate about four hundred persons, and the entire building with its magnificent appointments is being placed at the disposal of the Association.

**HOTEL ACCOMMODATION**

	<i>Rooms</i>	<i>Rate</i>
Clifton Hotel.....	400 to 450	\$3.00 up
Trennick Hotel.....	60 to 75	2.00 "
Savoy Hotel.....	40	2.00 "
Lafayette Hotel.....	60	2.00 "

**HOTELS AT NIAGARA FALLS, NEW YORK**

	<i>Rooms</i>	<i>Rate</i>
Prospect House.....	300	\$3.00 up
Imperial Hotel.....	300	2.50 "
Temperance House.....	300	2.50 "

Please make your reservations as early as possible. By doing so you will greatly relieve the Entertainment Committee at the time of registration, and at the same time assure yourself of the accommodation desired.

The Canadian Society of Anaesthetists, the Interstate Association of Anaesthetists of America, the Ontario Radiological Society, the Canadian Radiological Society, and the Ontario Hospitals Association, are all holding meetings concurrently with us at the Clifton, which should add considerably to the interest and attraction of the entire session.

For those who propose coming to the meeting by motor, parking arrangements have been provided. The different boulevards in the vicinity of the Clifton and the splendid roads to the nearby cities, provide attractive local tours for motorists.

Golfers will be welcomed by the Niagara Falls

Country Club which is less than one-half hour's motor drive from the hotel, along the Lewiston-Niagara Falls boulevard.

The section of Scientific Exhibits promises to be most interesting and instructive. Excellent collections of pathological specimens, wall charts, laboratory equipment, etc., will be under the supervision of Prof. Fitzgerald, of Toronto University. Special demonstrations will be put on at convenient hours and intervals.

X-ray plates in abundance with a goodly number of view boxes will make it possible for all interested to actively share in this section.

The Committee on Entertainment announces several items of interest; the trip on the famous gorge route, another on the "Maid of the Mist"; visits to the local power plants, and the famous Shredded Wheat plant at Niagara Falls, New York; a tour on the gigantic canal in course of construction by the Hydro-Electric Power Commission. Of course, the ladies are invited to all these features, and also to the Wednesday evening dinner which is being made semi-popular for their benefit. The Thursday evening dinner has been set apart for class reunions, a special programme of a cheery get-together nature following. A musicale has been especially arranged for the ladies for Thursday evening. Not a dull moment during the convention is the slogan of the Entertainment Committee.

Mail, telegrams and long distance messages should be addressed in care of the Secretary of the Ontario Medical Association, the Clifton Hotel, Niagara Falls, Canada. A special clerk will be on hand to take care of all communications.

*Dress.* Informal dress on all occasions.

As will be observed, the various sections have prepared an excellent collection of valuable papers and subjects for discussion. If, after reviewing these, however, any member of the Association considers that he has any valuable work which he would like to present at the meeting, undoubtedly an opportunity would be made available should such an one immediately

put himself in touch with the officers of the particular section in which participation is desired.

The committee wishes to draw the attention of the members to the fact that we have been promised the assistance of several of our distinguished graduates of Canadian universities who have made reputations for themselves and their alma maters, although they are at present residing across the imaginary line.

The committee is particularly desirous that each member present should assume some responsibility in the discussion of one or more of the papers. Discussion to be truly successful, should be general and spontaneous. If you feel that you are too bashful to listen to your own voice at a sectional meeting, send up in writing to the chairman of the section any questions bearing on the subject, which you wish answered.

#### TIME—STANDARD OR DAYLIGHT SAVING

The meeting will be run on the time being used at date of meeting in Niagara Falls, probably Daylight Saving. Watch for announcements.

#### TORONTO TO THE FALLS

The Cayuga (Canada Steamship Lines), will leave Yonge St. wharf at 7.30 a.m. Arrival at Clifton Hotel 10.30 a.m.

### PROGRAMME

(All Meetings held in the Clifton Hotel)

#### *Tuesday, May 31st*

- 11.30 a.m.—Accepting our Articles of Incorporation.
- 12.30 p.m.—Luncheon.
- 2.00 p.m.—Meeting of the Committee on General Purposes.
- 6.30 p.m.—Dinner (to be followed by a round table discussion). Speake of the evening, Mr. Tom Moore, President of the Trades and Labour Congress of Canada. The report of the Committee on Interrelations of the Medical Profession and the Public will be another interesting feature of this session.

#### *Wednesday, June 1st*

- 9.00 a.m.—Business Session—the Association.
- 11.00 a.m.—Address: Some Problems of Hospitalization. Dr. M. MacEachern, Vancouver.

- 11.45 a.m.—Address: Diet in Relation to Dental Disease (Illustrated). Dr. Wallace Seccombe, Professor of Preventive Dentistry, Royal College of Dental Surgeons.

1.00 p.m.—Luncheon.

2.00 p.m.—Sectional meetings.

7.00 p.m.—Dinner (Ladies invited).

Addresses: The President. Dr. J. Heurner Mullin,  
Dr. Charles White, Pittsburgh;  
Dr. J. A. Amyot, Ottawa.

#### *Thursday, June 2nd*

9.00 a.m.—Sectional meetings.

11.30 a.m.—Address in Surgery. Dr. E. Starr Judd.

1.00 p.m.—Luncheon.

2.00 p.m.—Sectional meetings.

7.00 p.m.—Dinner (Class Reunions).

Address: Dr. Harvey Gaylord,  
Buffalo.

Followed by a cheery get-together programme.

#### *Friday, June 3rd*

9.00 a.m.—Sectional meetings.

11.30 a.m.—Address in Medicine: Dr. Frank Billings.

1.00 p.m.—Luncheon.

2.00 p.m.—Sectional meetings.

### SECTIONAL PROGRAMME

#### EYE, EAR, NOSE AND THROAT

#### *Wednesday, 2.00 p.m.*

Experimental Studies of the Vitreous Body.  
Dr. Park Lewis, Buffalo.

Cataract Extraction Within the Capsule.  
Lieut.-Col. H. Smith, I.M.S., London, England.

Technique of Cataract Extraction. Dr. Colin Campbell, Toronto.

#### *Thursday, 9.00 a.m.*

Strabismus. Dr. E. Roger Wells, Toronto.  
Eye Conditions in Pregnancy. Dr. Charles Graef, New York.

#### *Thursday, 2.00 p.m.*

Tracheotomy vs. Intubation in General Practice.  
Dr. J. M. Rogers, Ingersoll.

Gas-Oxygen C. E. Combination for Nose and Throat Surgery. Dr. H. E. G. Boyle, London, England.

*Friday, 9.00 a.m.*

A Consideration of the Pathology and Treatment of Chronic Catarrhal Deafness. Dr. Perry Goldsmith, Toronto.

The Sinuses. Dr. Duncan McPherson, New York.

Vague Headaches of Nasal Origin. Dr. S. L. Alexander, Toronto.

### MEDICINE

*Wednesday, 2.00 p.m.*

#### THE ESSENTIALS OF OUR PRESENT DAY KNOWLEDGE OF DIAGNOSIS OF PULMONARY TUBERCULOSIS

Report submitted by members of the Lænnac Society.

Significance of History.

Constitutional Symptoms.

Physical Signs.

X-Ray.

Special Tests.

Differential Diagnosis.

Address on Tuberculosis (by invitation). Dr. J. C. Pritchard, Battle Creek, Mich.

*Thursday, 9.00 a.m.*

#### SYMPOSIUM ON DIABETES

Methods of Study. Dr. J. J. R. McLeod, Professor of Physiology, Toronto University.

Principles of Treatment. Dr. Walter R. Campbell, Pathological Department, Toronto General Hospital.

Prevention and Treatment of Complications. Dr. John R. Williams, Rochester, N.Y.

General Observations. Dr. W. T. Connell, Professor of Medicine, Queen's University, Kingston.

*Thursday, 2.00 p.m.*

#### SYMPOSIUM ON PNEUMONIA

Ætiology and Pathology. Dr. James Miller, Professor of Pathology, Queen's University, Kingston.

Atypical Clinical Types. Dr. Arthur A. Small, Chicago.

Treatment with Special Reference to the use of

Serum. Dr. Campbell P. Howard, Professor of Medicine, University of Iowa.

General Observations. Dr. Duncan Graham, Professor of Medicine, Toronto University.

*Friday, 9.00 a.m.*

The Effects of Anæsthetics on the Liver. Dr. F. H. McMechan, Avon Lake, Ohio.

Food Stuffs. Dr. J. W. Crane, Department of Pharmacology, Western University, London.

General Survey of the Nephritis Problem. Dr. Leonard G. Rowntree, Mayo Clinic, Rochester, Minn.

*Friday, 2.00 p.m.*

#### JOINT SESSION WITH SECTION OF SURGERY

#### OBSTETRICS AND GYNÆCOLOGY

*Wednesday, 2.00 p.m.*

The Physiology of the Newborn. Dr. Poirier, St. Catharines.

Exsanguination and Blood Transfusion in Septicæmia in the Child with Special Reference to Erysipelas and Blood Infections. Dr. Bruce Robertson, Toronto.

Subject to be announced. Dr. Bell, Toronto.

*Thursday, 9.00 a.m.*

Ergot and Pituitrin. Dr. A. H. Wright, Toronto.

My Method of Performing Version. Dr. Irving Potter, Buffalo.

Fifty Years of Obstetrical Experiences. Dr. W. T. Harrison, Keene, Ont.

Pyelitis in Pregnancy and the Puerperium. Dr. C. J. Currie, Toronto.

*Thursday, 2.00 p.m.*

Joint Section with the Section on Surgery. Symposium on Acute Pelvic Inflammation. Dr. E. K. Cullen, Detroit, and Dr. Lothrop, Buffalo.

*Friday, 9.00 a.m.*

Considerations regarding the Surgical Treatment of Malpositions of the Uterus. Dr. Chas. Gilmour, Toronto.

Prolapse of the Ureter. Dr. Hutchinson, Ottawa.

## SURGERY

*Wednesday, 2.00 p.m.*

The Value of Expert Anæsthesia to all Concerned. Dr. Samuel Johnson, Toronto.

The Use of Living Sutures in the Treatment of Hernia. Dr. W. E. Gallie, Toronto; Dr. A. B. LeMesurier, Toronto.

Postoperative Pulmonary Complications. Dr. H. Ryerson Decker, Pittsburg, Pa.

The Treatment of Irreparable Nerve Lesions. Dr. R. I. Harris, Toronto.

*Thursday, 9.00 a.m.*

## ACUTE PELVIC INFLAMMATION

Symptoms. Dr. Ernest Cullen, Detroit.

Diagnosis and Prognosis. Dr. Lothrop, Buffalo, N.Y.

Treatment. Dr. E. R. Secord, Brantford, Ont.

The Pathology and Treatment of Chronic Brain Injuries, with a View to Determining the Safe Operative Period (Illustrated). Dr. Wm. Sharp, New York City.

Carcinoma of the Prostate: Its Clinical Aspect. Dr. James C. McClelland, Toronto.

*Thursday, 2.00 p.m.*

Adenoma of the Thyroid Gland. Dr. C. W. Webb, Clifton Springs, N.Y.

Clinical Uses of Basal Metabolism in the Study of the Thyroid. Dr. Kenneth McGregor, Hamilton.

Tumours of the Breast. Dr. F. Buntz, Cleveland, Ohio.

The Evolution of Surgery as I Have Seen it in My Own Practice. Dr. A. Groves, Fergus.

The Acidosis Condition. Dr. W. H. Porter, New York City.

*Friday, 9.00 a.m.*

Atony of the Cæcum versus Chronic Appendix. Dr. Roscoe Graham, Toronto.

Carcinoma of the Colon and Rectum. Dr. Austin, Professor of Surgery, Queen's University, Kingston.

Diseases of the Biliary Tract. Dr. E. Stanley Ryerson, Toronto.

Hour Glass Stomach with Report of Cases. Dr. A. Moir, Peterborough.

The Acute Appendix. Dr. William Jamieson, Hamilton.

*Friday, 2.00 p.m.*

## SYMPOSIUM ON GASTRIC AND DUODENAL ULCER

Ætiology and Diagnosis. Dr. Martin E. Reh-fuss, Philadelphia.

X-Ray Diagnosis. Dr. L. R. Hess, Hamilton.

Medical Treatment. Dr. Sippy, Chicago.

Surgical Treatment. Dr. John B. Deaver, Philadelphia.

## X-RAY

*Tuesday, May 31st*

3.00 p.m.—Business Sessions of the Ontario and Canadian Radiological Societies.

7.00 p.m.—Dinner with the Ontario Medical Association and Round Table Discussion.

*Wednesday, June 1st*

9.00 a.m.—Dark Room Technique. Willard B. Hodgson, Eastman Kodak Co., Rochester, N.Y.

9.45 a.m.—Spina Bifida Occulta. Dr. Chas. B. Sutherland, Mayo Clinic.

10.30 a.m.—Chronic Appendicitis Associated with Cæcal Atony. Dr. Harold M. Tovell, Toronto.

Afternoon Session will be a Symposium on Therapy.

2.00 p.m.—X-Ray Therapy of Tonsils. Dr. John Reemer, New York.

3.00 p.m.—Deep Therapy. Drs. L. Pariseau, Montreal, and G. E. Richards, Toronto.

4.00 p.m.—Radium Therapy. Dr. W. H. B. Aikens, Toronto.

Thursday programme, which is being arranged by the Canadian Radiological Society, will be announced at a later date.

## NOTICE

1. Under the supervision of Dr. Chas. B. Sutherland, a large lantern slide exhibition will be forwarded from the Mayo Clinic which ought to be of extreme interest to those doing radiological work.

2. All are cordially invited to forward plates or slides for exhibition purposes. Ample illuminating boxes will be provided for this purpose.

THURSDAY, June 2nd, 1921, has been set apart as class reunion day at the annual meeting of the Ontario Medical Association which takes place May 31st, June 1st, 2nd and 3rd, 1921, at the Clifton House, Niagara Falls. Special accommodation will be given all classes desiring to dine together on that occasion, and the evening programme promises to be one of a real get-together nature. Classes planning reunions are requested to get in touch with Dr. E. T. Kellam, of Niagara Falls, chairman of the Entertainment Committee.

CLASS 1911, University of Toronto, decided at the last annual meeting of the Association to hold a grand reunion this year. Arrangements have been placed in the hands of an energetic committee of which Dr. W. M. Cody, 56 South Wentworth St., Hamilton, is secretary-treasurer. Every member of the class is urgently invited to make a special effort to be present, and to advise the secretary-treasurer accordingly. All who started out with the class, but who, for any reason, graduated at a later date, will be welcomed to this reunion.

THE Executive Committee of the Ontario Medical Association was engaged on Thursday, April 7th, with possibly one of the busiest and most important day's work which it has ever undertaken when, in addition to a great deal of routine business, four important conferences were held with:

The Executive Committee of the Council of the College of Physicians and Surgeons of Ontario;  
The Workmen's Compensation Board;  
The Ontario License Commissioners;  
The Canadian Life Officers Association.

From the point of view of our Association, each conference proved highly successful. At the conference with the College of Physicians and Surgeons, a Joint Advisory Committee consisting of six members was appointed as follows: from the Council of the College of Physicians and Surgeons, Drs. E. E. King (Toronto), J. Fenton Argue (Ottawa), and G. M. Brodie (Woodstock); from the Ontario Medical Association, Drs. G. S. Cameron (Peterborough), Geo. S. Burt (Owen Sound), and T. C. Routley (Toronto). Dr. King was elected chairman, and Dr. Routley, secretary. The duty of the committee is to obtain all available information on matters of professional and public interest, and to advise both the

College and the Ontario Medical Association as to the action which should be taken from time to time.

The Workmen's Compensation Board, the License Commissioners and the Canadian Life Officers' Association, all gave us cordial receptions and sympathetic hearings, and it was felt by the Executive Committee that a better understanding conducive to closer co-operation with each of the bodies would undoubtedly follow.

A complete report of the conferences will be available at the time of the annual meeting.

THE committee on Interrelations of the Medical Profession and the Public, held a very successful meeting in London on April 2nd, under the chairmanship of Dr. H. W. Hill. Eighteen members of the profession attended from various parts of the province, while the committee was honoured by the presence of Prof. Gilbert Jackson, of Toronto University, who greatly delighted all present not only with his talk on general social conditions, but by his participation in the discussions of the day. This committee promises to bring in an interesting report at the Niagara meeting.

IN this issue will be found the preliminary programme for the Forty-First Annual Meeting of the Ontario Medical Association. That no effort has been spared on the part of the committees in charge to make this meeting one huge success, will be evident to all readers.

Scenic Niagara Falls is particularly inviting in the first week of June, and offers a splendid opportunity for a few days' holiday. The scientific programme will certainly interest the profession. The committee on Entertainment is making special arrangements to take care of the ladies. A record attendance is anticipated. Make your reservations early.

THE Canadian Society of Anæsthetists, the Interstate Association of Anæsthetists and the New York Society of Anæsthetists will hold a joint meeting at The Clifton, Niagara Falls, Canada, June 1st to 3rd, in conjunction with the meeting of the Ontario Medical Association.

The following papers and speakers are scheduled for the Scientific Sessions:

The Value of Expert Anæsthesia to all Con-

cerned. (Chairman's Address Canadian and Interstate Anæsthetists) Samuel Johnston, M.D., Toronto, Canada.

Anæsthesia—Its Place in the Practice of Medicine. (Chairman's Address, New York Anæsthetists) John J. Buettner, M.D., Syracuse, N.Y.

The Medical Profession and the Nurse Anæsthetist. Wm. B. Howell, M.D., Montreal, Canada.

Charting the Signs and Symptoms of Anæsthesia for Teaching Purposes. A. E. Peebles, D.D.S., Wilmington, Ohio.

Lessons from Anæsthetic Accidents and Near Fatalities. R. M. Waters, M.D., Sioux City, Iowa.

A Consideration of Ethyl Chloride Anæsthesia. Wm. Webster, M.D., Winnipeg, Canada.

A Classification of Anæsthetic Signs and Cardio-Vascular Effects of Ethyl Chloride in Anæsthetic Dosage in Man. Arthur E. Guedel, M.D., Minneapolis, Minn.

The Influence of General Anæsthetics on the Liver. Charles La Rocque, M.D., Montreal, Canada.

Symposium on Anæsthesia in Relation to the Circulatory System.

Clinical Observations on the Effects of Operation and Anæsthesia on Blood Pressure. C. J. Wells, M.D., Syracuse, N.Y.

Clinical Studies in Circulatory Depression. E. I. McKesson, M.D., Toledo, Ohio.

Circulatory and Other Reflexes under Various Ether Tensions. E. A. Tyler, M.D., Philadelphia, Pa.

Blood Pressure Reactions under Ether Oil Colonic Anæsthesia. G. M. Geldert, M.D., Ottawa, Canada.

Clinical Studies on the Effects of Variable Nitrous Oxid-Oxygen Administration on Blood Pressure and Some Considerations of Re-breathing in Prolonged Anæsthesia. Geo. W. Tong, M.D., Brooklyn, N.Y.

The Cardiac Reserve in Fibroid Operations. T. D. Buchanan, M.D., New York City.

Symposium on the Relation of Oxygen and Acidosis to Anæsthesia.

Oxygen in Relation to Anoxæmia and Anæsthesia. R. D. Rudolf, M.D., and Thos. R. Hanley, M.D., Toronto, Canada.

A Preliminary Report on Experimental Work in Oxygen Tension during Anæsthesia. Mary E. Botsford, M.D., San Francisco, Cal.

Further Clinical Studies in Oxygen Need during Anæsthesia. W. I. Jones, D.D.S., Columbus, Ohio.

The Value of Ether-Oxygen and Sodium Bicarbonate in the Surgical Procedure. Elizabeth S. Tibbits, M.D., Cumberland, Md.

The Acidosis Condition. Wm. H. Porter, M.D., New York City.

Tissue Acidosis versus Blood Acidosis. W. H. Mercur, M.D., Pittsburgh, Pa.

Acidosis in Relation to Operations and Anæsthesia. Edith M. Ross, M.D., Winnipeg, Canada.

Rebreathing and Etherization. J. R. McCurdy, M.D., Pittsburgh, Pa.

The following papers are under consideration for presentation before the Surgical, Eye, Ear, Nose and Throat and the Obstetrical Sections of the Ontario Medical Association:

The Pathology and Treatment of Chronic Brain Injuries with a View to Determining the Safest Operative Period. Wm. Sharpe, M.D., New York City.

Anæsthesia for Brain Tumour Operations. C. T. W. Hirsch, M.D., London, England.

Synergistic Analgesia. J. T. Gwathmey, M.D., New York City.

Post-operative Complications of the Respiratory Tract. H. R. Decker, M.D., Pittsburgh, Pa.

Anæsthesia for Nose, Throat and Head Surgery by the Nitrous Oxid-Oxygen C. E. Combination. H. E. G. Boyle, M.R.C.S., London, England. (Official representative of the Anæsthetic Section of the Royal Society of Medicine).

Obstetrical Mortality and Morbidity in Relation to Anæsthesia. Wesley Bourne, M.D., and W. J. Duncan, M.D., Montreal, Canada.

Symposium on Methods of Anæsthesia.

Anæsthesia from the Surgeon's Viewpoint. Edgar McGuire, M.D., Buffalo, N.Y.

Experimental and Clinical Observations on Cotton Process Ether. Paul Cassidy, D.D.S., Cincinnati, Ohio.

Pressure in Relation to More Efficient Anæsthesia. Ben Morgan, M.D., Chicago, Ill.

Nitrous Oxid-Oxygen Anæsthesia for Tonsil Operations. John H. Evans, M.D., Buffalo, N.Y. Handling the Toxic Thyroid under Ether-Oil Colonic Anæsthesia. G. K. Dickinson, M.D., Jersey City, N.J.

Intratracheal Anæsthesia. Wm. G. Hepburn, M.D., Montreal, Canada.

An entire Scientific Session of the meeting will be devoted to Case Reports of unusual incidents under anæsthesia.

The Annual Dinner of the several societies will be served at The Clifton on the evening of June 2nd, at 7 o'clock.

For further information kindly address,

WESLEY BOURNE, M.D., *Secretary*  
34 St. Mark St., Montreal, Canada.

THE Western Ontario Academy of Medicine held its fifth general meeting of the 1920-21 session on March 25th, at the Y. M. C. A. auditorium before a large audience of physicians of London and Western Ontario, students of the Western University and graduate nurses.

Dr. Angus McLean, Professor of Surgery of Detroit College of Medicine, gave an interesting talk on, "Ulcer and Cancer of the Stomach Duodenum and Pylorus"—outlining the symptomatology and prognosis of each condition. In treatment he emphasized the desirability of the use of absorbable material in the suturing of the wall of stomach in either excision or in anastomosis.

Dr. Thomas S. Cullen, Professor of Gynæcology of Johns Hopkins, read a paper on, "The Weak Spot in American Surgery"—and pointed out the great need of a thorough pathological training in the evolution of the surgeon, thus securing to him the "binocular view" of clinician and pathologist in diagnosis. He also demonstrated several methods of dealing with difficulties arising in operations for the various hernia operations. This paper is to appear shortly in one of the surgical journals. Dr. Ernest Cullen, Professor of Gynæcology of Detroit College, discussed the paper at some length.

In the meetings of the autumn session of 1920,

clinics or demonstrations were given by the following:

Dr. Pratten and staff at the Queen Alexandra Sanatorium; Dr. F. Kelly, Detroit; Dr. E. R. Le Count, Chicago; Dr. Hoover of Cleveland; Dr. Stockton of Buffalo; Dr. R. Wilder of the Mayo Clinic; Drs. Ridsen and B. P. Watson of Toronto; in addition to extemporarily arranged meetings addressed by Drs. Service and Birks of China; Dr. Grenfell of Labrador and Dr. Clarke of Toronto.

The programme for the winter session was furnished locally by monthly meetings of the Journal Club, when current topics were epitomized and discussed and by the Clinical Society, where the staff of Victoria Hospital presented cases in conference.

The meeting on April 20th was held in the auditorium of the New Medical College and was addressed by Dr. J. T. Case of Battle Creek and Dr. W. T. Connell of Kingston.

At the last meeting on May 24th, the Alumni of the Western University will convene, and Drs. John B. Deaver, Philadelphia, Dr. Bernard Sippi of Chicago, Dr. Eusterman of the Mayo Clinic, and Dr. Harvey Gaylord of Buffalo will furnish the programme. During the three days preceding a continuous programme of demonstrations and clinics will be furnished by the local profession in the various hospitals and laboratories of the Institute of Public Health, and in the New Medical College. These demonstrations are arranged as a part of Convocation Week programme of the Western University.

THERE will be a re-union and dinner of the members of '08, University of Toronto, at the meeting of the Ontario Medical Association on Thursday, June 2nd, at Niagara Falls, Ontario. Any further information may be obtained from Dr. J. B. Brown, 131 Oakwood Ave., Toronto.

### BRITISH COLUMBIA

DURING the present session of the British Columbia Legislature, several Bills have been presented by various cults, seeking legal recognition for the right to treat disease.

The Bills are as follows:

1. A Bill to license Optometrists.
2. A Bill to license Drugless Healers, under which are classed Food Specialists, Kinesiologists, Sanipractors, etc.
3. A Bill to license Chiropractors.

The medical profession cannot remain indifferent to Bills which affect so vitally the practice of medicine and the public interest, although it regrets extremely that from time to time, because of the attempts of these cults to obtain recognition, it would seem to be placed on the defensive, a position which is invariably misunderstood by a large section of the public.

To make the position of the profession quite clear, a committee appeared before a Select Committee of the Legislature to which the while question of these Bills had been referred, and stated the position of the medical profession which was briefly:—

That before any man or woman should obtain

legal recognition to treat the sick, a certain standard of scientific education should be insisted upon. In other words, that nobody should be allowed to treat the sick unless, before some competent authority, he or she proved their ability to recognize disease.

After all, one of the chief duties of the Legislature is to pass laws for the protection of the Public, and it is difficult to understand how this principle can be ignored in a matter so serious as the safeguarding of the public health.

The Legislature has accorded the Optometrists recognition and a special Bill will be framed to meet their requirements. The other irregular practitioners will be required to conform to the Medical Acts and pass examinations on the subjects which will indicate that they have a knowledge of the human body in health and disease, which was the main contention of the medical profession.

Dr. A. B. McCallum of McGill, on his journey to the Orient addressed the Vancouver Medical Association on "Vitamines". He was also tendered a dinner by the Association which was largely attended.

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### ALBERTA

THE Alberta Medical Association sends us the following report on the re-organization of the profession in that province:

The Associate Secretary of the Association was instructed to visit every medical man in the province and get him to sign a membership card which involved an obligation on the part of the signer to do all in his power for the benefit of his patients, to keep himself up-to-date, to abide by the action of his Executive Committee, and to agree to stand by his confreres for the protection of their rights and privileges in the province.

The Secretary was to gather information and suggestions from every man with whom he came in contact regarding improvement of conditions affecting both the profession and the public; though these suggestions might involve any or all organizations having jurisdiction in the province. Before this canvass was undertaken the Association never had 25 per cent. of the medical pro-

fession in the province on its membership roll. At present it has about 80 per cent. The fee was raised from \$5.00 to \$20.00 and this amount includes membership in the Canadian Medical Association with subscription to the Journal.

The Secretary undertook to organize the District Associations and prepare for interchange of speakers between the city and the country, in order that the men might get closer together socially and professionally.

While the organization is still incomplete, the matter of fees has been taken up with the Compensation Board and a satisfactory arrangement has been reached. The net advance averages between 30 per cent. and 40 per cent. according to the work done. In some cases, however, the advance is 150 per cent. In addition a very friendly relationship has been established between the Compensation Board and our Associa-

tion, so that the door is always open to any further suggestions.

The question of fees for reporting vital statistics and infectious diseases has been taken up with the Governmental authorities and a favourable decision is expected.

The Association has gone on record as favouring a definite fee for Medical Health Officers for various incorporated towns, villages and municipalities on the basis of population, and expects to get this established. At the present time a great many medical men are acting as M.H.O. for little or nothing, besides carrying all the responsibility and getting all the abuse that is involved.

Negotiations are under way with the Government for a readjustment of fees for medical men as coroners, as expert witnesses in the courts, and for post-mortem examinations. The Government is very favourable to our contention and expects to make a change at the next session of the House.

We are now dealing with the question of contract practice under the Compensation Act when a request is made that all future contracts, commencing January 1st next, embody an agreement on behalf of the doctor that he will care for all patients as regards transportation, hospital accommodation and medical services until the patient gets better or dies, regardless of the fact that his contract may cease the day after the patient may come to him; further an enlargement of the Compensation Act to take in medical aid in case of sickness to the workman as well as his entire family as demanded by the Alberta Federation of Labour.

A clearing house has been established in the office of the Association for locating doctors, selling practices, reducing the congestion of

doctors in the cities and helping to distribute them among the good locations in the country where doctors are needed. In addition we are planning for clinic weeks by outstanding men, in order that doctors may not have to leave the province to get post-graduate work. At present the question of establishing two Governmental free diagnostic clinics where a thorough diagnosis can be made and be available to every citizen is being considered in the province, the clinic, however, doing no treatment whatever.

The question of licensing chiropractors has been taken up with the Government and the Senate of the University and the principle has been established that chiropractors must take the same examination as medical men in the basic sciences.

The establishment of two doctors' collection agencies is contemplated in Calgary and Edmonton for the collection of accounts and for making financial reports on the standing of patients. Arrangements are being made with the optometrists for the presentation and the passing of an Act for the protection of the public against imposters.

By means of the press we are arranging to inform the public on the advancement of medical science and giving health talks of various kinds. The public is entitled to information on many subjects that are common knowledge to the profession and of which it knows absolutely nothing. In short the Association is doing everything under its re-organization by helpful contact with the Department of Health, both local and at Ottawa, and with the other departments of the Government as well as United Labour and the United Farmers for the improvement of conditions both for the public and the profession.

### NOVA SCOTIA

A CLUB for the study of the History of Medicine through the activities of Dr. A. G. Nicholls, Professor of Pathology. Its membership is restricted to such medical men as are interested in the study of medical history whether they are members of the University or not. At present there are about twelve members in the club which has been called appropriately, "The Osler Club."

It is to meet once a month throughout the session. Already two papers have been communicated, one by Prof. Nicholls on "The Life

and Work of Thomas Willis, M.D.", the other by Prof. John Cameron of the Chair of Anatomy, on "The Life and Work of John Hunter."

There are one hundred and sixty-three students registered this session in the Faculty of Medicine at Dalhousie University; and fifty-one in the Faculty of Dentistry, or two hundred and fourteen in the two allied Faculties taken together.

There are three hundred and sixty-eight in the Faculties of Arts and Science.

### MANITOBA

THE Winnipeg Medical Society offers for competition among the medical men registered in Manitoba, who have graduated not earlier than 1914, a prize of \$200.00 to be awarded for the best essay on any subject related to the science or art of Medicine; the essay to be in the hands of the Secretary of the Society not later than September 1st, 1921.

The Society reserves the right to withhold the prize unless, in the opinion of the judges to be appointed by the Executive Council of the Society, the essays are of sufficient merit.

A three months' course on the problem and methods of social welfare work has been commenced at the University of Manitoba. The three divisions, Mental Hygiene, Child Welfare and Economic Conditions of Social Welfare are under the direction of members of the University Faculty assisted by prominent social service workers and members of the staffs of the institutions for mental disease.

During the last half of January a number of cases of so-called epidemic myoclonus multiplex appeared in Winnipeg and a considerable increase in the number of cases of epidemic encephalitis also occurred. The former condition has been characterized by a comparatively sudden onset with symptoms of general infection followed by severe pain in the distribution of peripheral nerves. In the matter of a week or ten days the pains give way to the sharp clonic muscular contractions in the previously painful areas. In most cases there has been little or no evidence of cerebral involvement.

The first of the series of three new buildings for the department of Medicine, University of Manitoba, is nearing completion. It is of

concrete and brick construction and is situated in the grounds of the present Medical College. The first floor provides commodious quarters for the departments of bio-chemistry and bacteriology, while the second floor is devoted entirely to the department of physiology. Each division has been carefully planned to meet the needs of the work of the department to which it is to be devoted. Large airy well lighted laboratories and lecture room together with adequate provision for museums, departmental libraries, offices, etc., will go far toward meeting the demand which greatly increased work has engendered.

The Province of Manitoba has embarked on an extensive building programme in connection with the care of the Feeble-Minded and Insane. During the past year the first unit of the school for the feeble-minded was commenced, a colony building was completed, a nurses' home and psychopathic unit commenced at the Hospital for Mental Diseases, Brandon, and a new laundry building supplied at Selkirk. During the present year work will be completed on the two units at Brandon, a psychopathic unit completed at Selkirk and a second building added to the school for the feeble-minded at Portage la Prairie.

A preliminary announcement has been made by the University of Manitoba with regard to a post-graduate course of instruction in medicine, which will commence on April 25th, and concluded on May 14th. Graduates in medicine in any school may attend, and no charge will be made for any of the courses of study in special branches of medicine and surgery. It is stated that attendance may commence and finish at any time, and graduates are privileged to study in whatever course they desire.

### Medical Societies

#### NOTICE OF CHANGE OF MEETING PLACE OF THE CANADIAN RADIOLOGICAL SOCIETY

THE Annual Convention of the Canadian Radiological Society will be held this year in conjunction with the meeting of the Ontario

Radiological Society at Niagara Falls on May 31st to June 4th, inclusive. Members will please take notice of this change.

An invitation is extended to all members of the profession to be present, as the programme to be presented will justify the time spent.

## CHILD WELFARE ACTIVITIES IN CANADA

*Nova Scotia.* The Nova Scotia Red Cross Society organized, equipped, paid for and operated during the summer of 1920 two distinct and separate "Public Health Caravans", which toured the Province for forty-eight days in accordance with an itinerary which allowed for the performance of clinical work at forty-five centres and for a number of public meetings in the larger centres between clinics. The direct results as far as known in figures are: one hundred and five meetings; thirty-six clinics; eight hundred and sixty chest examinations; one thousand eight hundred and twenty-two dental cases; three hundred addresses; four thousand three hundred and thirty-six patients treated, and three hundred and ninety operations conducted during trip. This Health Demonstration is the most outstanding activity conducted in Canada to date, and shows well what vision and energy can effect.

A modern "Health Centre" has been opened in Halifax by the Massachusetts-Halifax Health Commission, in a building recently vacated by the Canadian Naval Hospital. It is intended that the work of this Centre shall include prenatal, pre-school and school clinics, and school officials will be offered the use of hospital facilities for correcting remediable defects of pupils.

*Quebec.* The Child Welfare Association of Montreal recently conducted a physical survey of pupils attending the Academy at Ayers Cliff. Some four hundred and ten physical defects were found among seventy pupils examined; no child being found free from some physical defects. Malnutrition was prevalent to the extent of 18.5 per cent. 80 per cent. of cases examined were in immediate need of treatment of teeth, while faulty health habits were prevalent throughout the entire series. The results of the survey

bore out the previous findings of impartial observers that the rural school child was less healthy than the average urban pupil. This survey will shortly be published in book'et form, along with the "Eastern Townships Health Drive" of 1920.

The results of a "Social Study along Health Lines" of the first one thousand children examined at the Health Clinic of the Canadian Patriotic Fund (Montreal Branch) offers revelation into child health conditions in Montreal. This work has been pronounced the most exhaustive Child Health Study effected in Canada to date.

*Ontario.* A conference on Child Welfare was held at Ottawa under the auspices of the Federal Health Department during October, 1920. A Council on Child Welfare was formed with Provincial representation on the central Board of Management, to which all nationally organized bodies engaged in child welfare are entitled to representation. The Board of Education (Toronto) has recently conducted a weighing and measuring test among children attending four Public schools to determine the prevalence of malnutrition. While the prevalence of malnutrition was unduly present, the public were surprised to find that this condition of physical inferiority was more rampant, not among the poorly housed children, but among those in possession of material requirements, thus confirming results of similar studies made elsewhere.

The Provincial Red Cross Society of Ontario is actively participating in the public health activities of the Provincial Board of Health, by providing Public Health nurses to supplement the already good work undertaken by the Provincial authorities. These Public Health nurses are provided with individual automobiles for rapidity of transportation, etc.

## Book Reviews

HOSPITAL AND HEALTH SURVEY OF CLEVELAND, OHIO. A report presented to the Committee on Survey of the Cleveland Hospital Council by HAVEN EMERSON, M.D., Director, and eight collaborators. Copyrighted and published by the Cleveland Hospital Council,

308 Anisfield Building, Cleveland, Ohio. In eleven parts, published as separate volumes at \$5.50 plus postage for all or 50c. plus postage each. Part I, Introduction; General Environment; Sanitation, by Dr. Haven Emerson, 90 pages. Part II., Public Health

Services: Private Health Agencies, by Dr. Haven Emerson, 168 pages. Part III., A Programme for Child Health, by Dr. Josephine Baker, 62 pages. Part IV., Tuberculosis, by Dr. Donald B. Armstrong, 60 pages. Part V., Venereal Disease, by Dr. Alex. N. Thompson, 51 pages. Part VI., Mental Diseases and Mental Deficiency, by Dr. T. W. Salmon and Dr. Jesse M. W. Scott, 75 pages. Part VII., Industrial Medical Service: Women and Industry: Children and Industry, by Dr. Wade Wright, 129 pages. Part VIII., Education and Practice in Medicine, Dentistry, Pharmacy, by Dr. Haven Emerson, 59 pages. Part IX., Nursing, by Josephine Goldmark and Anne H. Strong, R.N., with seven collaborators, 105 pages. Part X., Hospitals and Dispensaries, by Michael M. Davis, Jr., Ph.D., 180 pages. Part XI., Method of Survey: Bibliography of Surveys: Index, by Dr. Haven Emerson and Dr. Gertrude E. Sturges, 80 pages.

THE eleven volumes, nearly eleven hundred pages all told, form a regular treatise on the general "public health and sickness" situation, with Cleveland as the subject. The reviewer is tempted to suggest "Medical Chaos and its Cure" as an appropriate title for this monumental work, with its pages of detailed recommendations.

Part eleven, *methods*, should really be read first. The rationale of the survey is nowhere better outlined than in the opening paragraphs—"While all the world is clamouring for production, it is worthy of great praise that a community should determine that, in one place at least, the producer shall rank ahead of the produce in their thoughts and plans." Again, "Property will always have its protectors and promoters. It is persons who are chiefly neglected." This is the keynote of the whole eleven volumes—the slogan of *service to humanity itself* which runs all through the survey.

Part ten, *Hospitals and Dispensaries*, will interest every physician. It estimates 2 to 3 per cent. of the population is ill at any one time, continuously; that five beds per 1,000 of the population is required to care adequately for the sick; and proceeds to outline the organization for a hospital that is not to be merely a "Medical boarding house" but is to give medical service of the highest and most human type. The modern hospital exists, not to treat *disease*, but *humans who are ill*.

Part nine, *Nursing*, amongst many excellent recommendations emphasizes the value of the University providing both undergraduate and graduate training, leading to the Nursing Diploma and also a University degree. Academic training for a year, then practical nursing training with the usual medical subjects for three years, and a post-graduate university course in Institutional or Public Health work for both seems to be the choice arrangement at present. The call to *service* is again addressed to all, clearly and unmistakably here.

Part eight, *Education and Practice in Medicine*, treats of the shortcomings as well as of the successes of the Medical School and of the practising physician, without fear or favour, finding the chief defects in (a) lack on the part of both the profession and the university of real specialism with expert knowledge of the subjects: (b) lack on the part of the university of single-hearted devotion to *teaching* in its broadest sense, rather than to *carrying on* community work; (c) lack on the part of both the profession and the university of using to full advantage the material available; (d) the lack, very familiar everywhere, of unity and co-operation amidst the profession. No more serious or important admonition to the medical profession can be given than the mere story of the situation as here outlined.

Part seven, *Industrial*, as might be expected, deals with the sometimes splendid, but usually quite unenviable, situation of industrial medicine. The recommendations made are far reaching but too voluminous for reproduction. Again the need is for organization, co-operation, construction, correlation—not the blind haphazard opportunist situation so far existing.

Part six, *Mental Disease*; Part five, *Venereal Disease*; Part four, *Tuberculosis*, are devoted particularly to the situation of these great causes of social decrepitude as they exist in Cleveland, and form real treatises on these subjects as racial menaces. Pity, 'tis, 'tis true, not only of Cleveland but also almost everywhere—and more often the situation is worse rather than better. The failure of modern medicine, so perfect as a technical service, to function well as a sociological device, is no where better demonstrated than in the consideration of these diseases.

Parts three, two and one, dealing with the *Child*, *Public and Private Health Agencies*, and the general *sanitary* situation in Cleveland are chiefly interesting in their recognition of the present state of "pure desperation"—and in their op-

timistic view of the developments which social forces now actively at work are driving towards "onward and upward."

Foolishly perhaps the reviewer dares attempt something which is foredoomed to failure that is to summarize in a few words the vast amount of detailed evidence, careful study, and wealth of recommendation issued in this most timely and valuable report, as follows:

The situation of the race, physically speaking, is deplorable; the privately operating medical profession does not and cannot, as things are, begin to compass the needs; such public agencies as exist are quantitatively quite inadequate to cover the real demands; and it is time for Medicine and all its cohorts to realize the facts and "gird up its loins" to meet them.

(In the United States, private agencies have on a vast scale driven ahead of both the Medical Profession and the Public Services—a huge wave of lay activity, the result of Public Service inertia and of medical limitations imposed by an accepted but mistaken concept of professional ethics. In Canada the field is yet open before us and it is up to the Medical Profession itself to lead the way, instead of waiting until it finds itself dragged unwillingly along the path of its real duty—which is, not old time "practice" but the "physical regeneration of the race.")

H. W. H.

**A GUIDE TO ANATOMY.** For Students of Medical Gymnastics, Massage and Medical Electricity. By MISS E. D. EWART. Demy 8vo. with xii and 301 pages and 94 illustrations, including 35 plates. Published by H. K. Lewis & Co., Limited, 28 Gower Place, London, W.C. 1. Price, 16/net.

THE author in her preface points out that it must be clearly understood that this volume is essentially intended for the class of students indicated, and that it is insufficient as a guide to Anatomy in the complete sense. With this reservation in mind one may say that she has succeeded admirably in presenting a concise summary of the essentials of anatomical knowledge. The illustrations serve their purpose well, and free use has been made of diagrams, which by their simplicity convey a clear mental impression.

The book should prove to be a mine of knowledge to the lay worker in the field of medical gymnastics, massage and physical reconstruction in general.

E. R. S.

**THE ENDOCRINES.** By SAMUEL WYLLIS BANDLER, M.M., F.A.C.S., Professor of Gynaecology in the New York Post-Graduate School and Hospital. Octavo of 488 pages. Philadelphia and London: W. B. Saunders Company, 1920.

In his preface the author states he has drawn from the works of numerous authors who he names. So many of his pages appear to be constructed on the scissors and paste basis, without suggestion of editing, that we have a hodge podge of theories and beliefs which lead us nowhere. There appears to be no attempt to clarify the situation, and our imperfect knowledge of the internal secretions is not in any way enhanced by this work.

We can see no reason for the publication of this book.

J. H. E.

**GEORGE MILLER STERNBERG.** A Biography. By his wife, MARTHA L. STERNBERG. Price, \$5.00. 232 pages with illustrations. Publishers: American Medical Association, 535 North Dearborn Street, Chicago, 1920.

THIS biography of Major General Sternberg is written by his wife in the hope that the story of his life and work might serve as an inspiration to future generations, and is published by the American Medical Association to place on permanent record the pioneer work in bacteriology and preventive medicine carried on by Dr. Sternberg during the early years of his military service and for the greater part of the time under very inauspicious conditions.

The volume is not only a well written and most interesting account of the personal life of Dr. Sternberg, and his activities during the American Civil War and in several Indian Campaigns in the Western States, but it also tells the story of his earnest and laborious researches into the causes of numerous epidemics of cholera, typhoid fever, malaria and yellow fever, finally ending in the appointment of the commission that resulted in the discovery of the mode of transmission of yellow fever; a discovery which has resulted in the freeing of so many southern tropical cities from the ravages of this dreaded scourge, and which has rendered possible the building of the Panama Canal.

The American Medical Association is to be congratulated on the publication of this volume. The story told is interesting, instructive and inspiring.

A. D. B.

## NOTES ON THE MEDICAL TREATMENT OF DISEASE.

For Students and Young Practitioners.

By ROBERT DAWSON RUDOLF, O.B.E., M.D. (Edin.), F.R.C.P., professor of therapeutics in the University of Toronto. University of Toronto Press, 1921.

We have much pleasure in commending this small volume on the Medical Treatment of Disease to our readers. Its aim, as stated in the preface, is to impress on the reader the broad principles of the medical treatment of the sick, and to urge the importance of method in dealing with patients. Of great importance is the effort made throughout the volume to impress the physician with the fact that it is more important to treat the patient than to follow any routine treatment of the disease. The fundamentals, however, of the management of disease affecting the various systems, and of the specific infectious diseases are clearly stated, and useful prescriptions are scattered through the book. We can cordially recommend the book both to student and practitioner as a concise statement of the important methods of treatment to be employed in guiding patients through their times of sickness and distress. Valuable chapters are introduced on the Therapeutic Use of Oxygen, the Present Position of Venesection, and on Opothrapy, which will well repay careful perusal. While we confess with the writer that much of our therapy is still empirical, we are also of the opinion that if every physician would give as much thought to studying the exact actions of the drugs he prescribes, and the untoward effects which may be produced by unsuitable doses, as the careful surgeon does to the anatomy of the part on which he is about to operate, more successful results would follow drug therapy. We regret that more frequent reference is not made to the value of hydrotherapy, and greater detail is not given to its method of employment.

A. D. B.

INTERNATIONAL CLINICS: Volume IV, Thirtieth Series, 1920. Edited by H. R. M. LANDIS, M.D., with the collaboration of Editors in Canada, Great Britain, Continental Europe and U.S.A. Octavo of 311 pages. Philadelphia and London: J. B. Lippincott Company, 1920. Cloth, \$7.75, net.

Dr. Landis with his collaborators continues to keep this publication up to a high standard. The present volume, completing the thirtieth series, after presenting some seven clinical

lectures on medical, surgical, and obstetrical subjects, gives a splendid series of papers in the departments of Medicine, Pediatrics, Surgery and Industrial Medicine, in which foreign writers are prominent. Of these we may specially mention F. Parkes Weber, Clemens Von Pirquet, Jean Golay of Geneva, Antonin Benazet and Quintrie-Lamothe. Von Pirquet has been convinced from his experience with children in Vienna that lack of food and poor sanitation are great factors in the production of tuberculosis. By recognition of the principles of proper nutrition, appetite encouraged by plenty of sunshine and fresh air, and the body waste diminished by a regular mode of life, he is satisfied tuberculosis may be restricted and the percentage of mortality reduced to a minimum degree.

Golay's study of the clinical value of the Wassermann reaction is timely and gives a splendid review of recent opinions on the subject in addition to his own deductions.

The article on diabetes insipidus gives an exhaustive bibliography of the subject and points out the relation of the condition to disturbed pituitary function. The authors consider the relation proven and feel the disease should be known as pituitary polyuria and may now be placed in the group of remediable diseases.

The articles in the other departments are of equal value making the volume one which will repay perusal by physician, surgeon, or general practitioner. We heartily recommend it.

J. H. E.

THE COURSE OF OPERATIVE SURGERY. A Handbook for Practitioners and Students. By PROF. DR. VICTOR SCHMEIDEN, Professor of Surgery in the University of Halle, and ARTHUR TURNBULL, M.B., Ch.B., lately demonstrator of Anatomy in the University of Glasgow. Second revised English edition of 350 pages and 436 illustrations. Published by J. F. Hartz Co., Limited, of Toronto. Price, \$6.50.

While essentially and primarily this volume is intended as a guide to the study of operative surgery on the cadaver, the authors make a special effort to point out the modifications of the various operations described, which are rendered necessary when it is proposed to carry out these on the living. The material is largely based on the operative work of Professor Bier of Berlin, and as for purposes of compactness, only one or at most two methods of carrying out each

individual operation are described, the result is that the operative methods indicated are almost entirely those of the German school, and little or no credit is given to the surgeons of other countries for any improvement in technique.

The authors have succeeded in describing the formal operations of surgery in a very clear and lucid manner, and the illustrations serve their purpose admirably. The section concerning the operations on the abdomen is the best in the book, but to the practical surgeon it would seem that it might have been further amplified and a little less space devoted to the ligation of the main arteries.

Amputation of the lower third of the leg by the long anterior flap is described whereas the long posterior flap has many advantages. No mention is made of the F. Jordan method of disarticulation of the hip, yet in selected cases it would appear to be decidedly the operation of choice.

One can hardly escape a certain sense of disappointment that this edition has not been further revised but follows so closely the text of the edition of 1912. Many of the newer operations are entirely omitted. No mention is made of operative measures for the treatment of fractures, of Pott's disease, or of congenital defects such as club foot, or hare lip.

In the section dealing with the treatment of chronic empyema the Schede operation is described, and no mention of the advantages to be gained by some form of lung decortication is made. The old method of avulsion of the Gasserian ganglion is described with no reference to the advantages of posterior root section. Certain methods for the closure of cranial defects are referred to but the use of a graft of rib cartilage is omitted.

However, while it is true that much has been left out, it is surprising how much ground has been covered, and with few exceptions the methods described are those of good surgical practice and may safely be followed. E. R. S.

A HANDBOOK OF SKIN DISEASES AND THEIR TREATMENT. By ARTHUR WHITFIELD, M.D., Second revised edition. London. Edward Arnold. Price, 18/ net.

In this work, the commoner diseases of the skin are described in a clear and concise way.

The author has devoted a chapter to the technique of preparing and staining the fungi and bacteria commonly found in skin diseases.

The latest treatment is well reviewed. The illustrations are excellent. D. K. S.

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